California Native Species Field Survey Form

Mail to:
Natural Diversity Database
California Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work: ____ - ____ - ____ (month (mm) date (dd) year (yyyy))

Scientific Name: Athene cunicularia
Common Name: Burrowing Owl

Species Found? ☒ yes ☐ no Athene cunicularia (If not, why?)
Total No. Individuals _____ Subsequent Visit? ☐ yes ☐ no
Is this an existing NDDB occurrence? _____ ☐ no ☒ unk. (Yes, Occ. #)
Collection? If yes: _____ (Number) _____ (Museum / Herbarium)

Reporter: H. GREEN, T. WEBBER, J. ROCKS, P. RICHARDS, B. LOHSTROH
Address: URS CORPORATION
1615 MURRAY CANYON RD. SUITE 1000
SAN DIEGO, CA 92108
Email Address: _____
Phone: (619) 294-9400

Plant Information
Phenology: _____ % vegetative _____ % flowering _____ % fruiting

Animal Information
Age Structure: _____ # adults _____ # juveniles _____ # unknown
☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location ***(please also attach or draw map on back)***

County: IMPERIAL Landowner / Mgr.: _____
Quad Name: _____ Elevation: _____
T ____ R ____ ____ 1/4 of ____ 1/4 of Section ____ T ____ R ____ ____ 1/4 of ____ 1/4 of Section ____
UTM: Zone: _____ (10, 11) Datum: _____ (NAD83, NAD27, WGS84, other)
Source: _____ (GPS, map & type, etc.) Point Accuracy: _____ Meters
UTM Coordinates _____

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope)*

Other rare species?

Site Information Overall site quality: ☐ Excellent ☒ Good ☐ Fair ☐ Poor

Current / surrounding land use: AGRICULTURE

Visible disturbances / possible threats:

Comments:

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference) _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*	Slide	Print
Plant / animal	☐	☒
Habitat	☐	☒
Diagnostic feature	☐	☐

May we obtain duplicates at our expense? ☐ yes ☐ no

CNAME	SOURCE	SITING_DATE	COMMENTS	X_COORD	Y_COORD
BURROWING OWL	URS	2001/2002		-115.63184	33.17111
BURROWING OWL	URS	2001/2002		-115.64956	33.14545
BURROWING OWL	URS	2001/2002		-115.64963	33.14471
BURROWING OWL	URS	2001/2002		-115.64958	33.14396
BURROWING OWL	URS	2001/2002		-115.64965	33.14336
BURROWING OWL	URS	2001/2002		-115.64966	33.14253
BURROWING OWL	URS	2001/2002		-115.64951	33.11273
BURROWING OWL	URS	2001/2002		-115.64955	33.10990
BURROWING OWL	URS	2001/2002		-115.64948	33.08877
BURROWING OWL	URS	2001/2002		-115.64944	33.08502
BURROWING OWL	URS	2001/2002		-115.64790	33.07363
BURROWING OWL	URS	2001/2002		-115.64795	33.07084
BURROWING OWL	URS	2001/2002		-115.64796	33.06808
BURROWING OWL	URS	2001/2002		-115.64792	33.06656
BURROWING OWL	URS	2001/2002		-115.64794	33.06514
BURROWING OWL	URS	2001/2002		-115.64796	33.06399
BURROWING OWL	URS	2001/2002		-115.64789	33.06249
BURROWING OWL	URS	2001/2002		-115.64800	33.06115
BURROWING OWL	URS	2001/2002		-115.64805	33.05808
BURROWING OWL	URS	2001/2002		-115.64810	33.05485
BURROWING OWL	URS	2001/2002		-115.64805	33.05398
BURROWING OWL	URS	2001/2002		-115.64936	33.05355
BURROWING OWL	URS	2001/2002		-115.70535	33.05444
BURROWING OWL	URS	2001/2002		-115.63002	33.17194
BURROWING OWL	URS	2001/2002		-115.64156	33.15289
BURROWING OWL	URS	2001/2002		-115.64663	33.14941
BURROWING OWL	URS	2001/2002		-115.63853	33.14985
BURROWING OWL	URS	2001/2002		-115.65000	33.13827
BURROWING OWL	URS	2001/2002		-115.65020	33.13404
BURROWING OWL	URS	2001/2002		-115.65002	33.12785
BURROWING OWL	URS	2001/2002		-115.60648	33.16081
BURROWING OWL	URS	2001/2002		-115.60680	33.15830
BURROWING OWL	URS	2001/2002		-115.59819	33.15992
BURROWING OWL	URS	2001/2002		-115.59794	33.15820
BURROWING OWL	URS	2001/2002		-115.59975	33.15627
BURROWING OWL	URS	2001/2002		-115.58910	33.15764
BURROWING OWL	URS	2001/2002		-115.61742	33.14948
BURROWING OWL	URS	2001/2002		-115.58056	33.16361
BURROWING OWL	URS	2001/2002		-115.58041	33.16453
BURROWING OWL	URS	2001/2002		-115.58040	33.16533
BURROWING OWL	URS	2001/2002		-115.58039	33.16602
BURROWING OWL	URS	2001/2002		-115.58038	33.16670
BURROWING OWL	URS	2001/2002		-115.58050	33.16739
BURROWING OWL	URS	2001/2002		-115.58126	33.17130
BURROWING OWL	URS	2001/2002		-115.58137	33.17279
BURROWING OWL	URS	2001/2002		-115.58108	33.17370
BURROWING OWL	URS	2001/2002		-115.58030	33.17151
BURROWING OWL	URS	2001/2002		-115.58015	33.17231
BURROWING OWL	URS	2001/2002		-115.64825	33.05292
BURROWING OWL	URS	2001/2002		-115.67816	33.05381
BURROWING OWL	URS	2001/2002		-115.72394	33.05418
BURROWING OWL	URS	2001/2002		-115.53277	33.17131
BURROWING OWL	URS	2001/2002		-115.53239	33.16924
BURROWING OWL	URS	2001/2002		-115.50840	33.17056
BURROWING OWL	URS	2001/2002		-115.50677	33.17065

CNAME	SOURCE	SITING_DATE	COMMENTS	X_COORD	Y_COORD
BURROWING OWL	URS	2001/2002		-115.49110	33.17081
BURROWING OWL	URS	2001/2002		-115.48974	33.17090
BURROWING OWL	URS	2001/2002		-115.48688	33.17087
BURROWING OWL	URS	2001/2002		-115.45956	33.17122
BURROWING OWL	URS	2001/2002		-115.45084	33.17134
BURROWING OWL	URS	2001/2002	BURROWING OWL	-115.50882	33.17102
BURROWING OWL	URS	2001/2002		-115.50540	33.17102
BURROWING OWL	URS	2001/2002	PAIR	-115.49161	33.17098
BURROWING OWL	URS	2001/2002		-115.45072	33.17086
BURROWING OWL	URS	2001/2002		-115.48611	33.17123
BURROWING OWL	URS	2001/2002	PAIR	-115.48744	33.17124
BURROWING OWL	URS	2001/2002		-115.48882	33.17123
BURROWING OWL	URS	2001/2002		-115.54444	33.17112
BURROWING OWL	URS	2001/2002		-115.55780	33.17106
BURROWING OWL	URS	2001/2002		-115.58055	33.15533
BURROWING OWL	URS	3-5-02		-115.62093	33.17111

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EO Index No. _____ Map Index No. _____

Date of Field Work: ____ - ____ - ____ (month (mm) / date (dd) / year (yyyy))

Scientific Name: BUTEO REGALIS

Common Name: FERRUGINOUS HAWK

Species Found? ☒ yes ☐ no _____ If not, why?

Total No. Individuals 2 Subsequent Visit? ☐ yes ☐ no

Is this an existing NDDB occurrence? _____ ☐ no ☐ unk.
Yes, Occ. #

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: H. GREEN, P. RICHARDS, B. LOHSTROH

Address: URS CORPORATION
1615 MURRAY CANYON RD. SUITE 1000
SAN DIEGO, CA 92108

Email Address: _____

Phone: (619) 294-9400

Plant Information

Phenology: _____ % vegetative _____ % flowering _____ % fruiting

Animal Information

Age Structure: _____ # adults _____ # juveniles 2 # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location ***(please also attach or draw map on back)***

County: IMPERIAL Landowner / Mgr.: _____

Quad Name: _____ Elevation: _____

T _____ R _____ _____ 1/4 of _____ 1/4 of Section _____ T _____ R _____ _____ 1/4 of _____ 1/4 of Section _____

UTM: Zone: _____ (10, 11) Datum: _____ (NAD83, NAD27, WGS84, other)

Source: _____ (GPS, map & type, etc.) Point Accuracy: _____ Meters

UTM Coordinates _____

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope)*

AGRICULTURE

Other rare species?

Site Information Overall site quality: ☐ Excellent ☒ Good ☐ Fair ☐ Poor

Current / surrounding land use: AGRICULTURE, RESIDENTIAL

Visible disturbances / possible threats: TRANSMISSION LINES W/IN FLIGHT PATH

Comments:

Determination: *(check one or more, and fill in blanks)*

- ☐ Keyed (cite reference) _____
- ☐ Compared with specimen housed at: _____
- ☐ Compared with photo / drawing in: _____
- ☐ By another person (name): _____
- ☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print
Plant / animal	☐	☐
Habitat	☐	☐
Diagnostic feature	☐	☐

May we obtain duplicates at our expense? ☐ yes ☐ no

CNAME	SOURCE	SITING_DATE	COMMENTS	X_COORD	Y_COORD
FERRUGINOUS HAWK	URS	2001/2002		-115.52826	33.17106

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Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work: ____ - ____ - ____
month (mm) date (dd) year (yyyy)

Scientific Name: Plegadis chihi
Common Name: White-faced Ibis

Species Found? ☒ yes ☐ no Plegadis chihi If not, why?
Total No. Individuals _____ Subsequent Visit? ☐ yes ☐ no
Is this an existing NDDB occurrence? _____ ☐ no ☒ unk.
Yes, Occ. #
Collection? If yes: _____ _____
Number Museum / Herbarium

Reporter: P. RICHARDS, B. LOHSTROH, H. GREEN
Address: URS CORPORATION
1615 MURRAY CANYON RD, SUITE 1000
SAN DIEGO, CA 92108
Email Address: _____
Phone: (619) 294-9400

Plant Information
Phenology: _____ % vegetative _____ % flowering _____ % fruiting

Animal Information
Age Structure: _____ # adults _____ # juveniles _____ # unknown
☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location ***(please also attach or draw map on back)***

County: Imperial Landowner / Mgr.: _____
Quad Name: _____ Elevation: _____
T ____ R ____ ____ 1/4 of ____ 1/4 of Section ____ T ____ R ____ ____ 1/4 of ____ 1/4 of Section ____
UTM: Zone: _____ (10, 11) Datum: _____ (NAD83, NAD27, WGS84, other)
Source: _____ (GPS, map & type, etc.) Point Accuracy: _____ Meters
UTM Coordinates _____

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope)*
AGRICULTURAL FIELD

Other rare species?

Site Information Overall site quality: ☐ Excellent ☐ Good ☐ Fair ☐ Poor
Current / surrounding land use: AGRICULTURE
Visible disturbances / possible threats:
Comments:

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference) _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)* Slide Print
Plant / animal ☐ ☐
Habitat ☐ ☐
Diagnostic feature ☐ ☐

May we obtain duplicates at our expense? ☐ yes ☐ no

CNAME	SOURCE	SITING_DATE	COMMENTS	X_COORD	Y_COORD
WHITE-FACED IBIS	URS	2001/2002		-115.43943	33.16994
WHITE-FACED IBIS	URS	2001/2002	FLOCK OF 40		

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Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work: ____ - ____ - ____ (month (mm) / date (dd) / year (yyyy))

Scientific Name: Numenius americanus
Common Name: Long-billed curlew

Species Found? ☒ yes ☐ no _____ If not, why?
Total No. Individuals _____ Subsequent Visit? ☐ yes ☐ no
Is this an existing NDDB occurrence? _____ ☐ no ☒ unk. (Yes, Occ. #)
Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: H. GLEEN, P. RICHARDS, B. LOHSTROH
Address: URS CORPORATION
1615 MURRAY CANYON RD. SUITE 1000
SAN DIEGO, CA 92108
Email Address: _____
Phone: (619) 294-9400

Plant Information
Phenology: _____ % vegetative _____ % flowering _____ % fruiting

Animal Information
Age Structure: _____ # adults _____ # juveniles _____ # unknown
☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location ***(please also attach or draw map on back)***

County: Imperial Landowner / Mgr.: _____
Quad Name: _____ Elevation: _____
T ____ R ____ ____ 1/4 of ____ 1/4 of Section ____ T ____ R ____ ____ 1/4 of ____ 1/4 of Section ____
UTM: Zone: _____ (10, 11) Datum: _____ (NAD83, NAD27, WGS84, other)
Source: _____ (GPS, map & type, etc.) Point Accuracy: _____ Meters
UTM Coordinates _____

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope)*
AGRICULTURAL FIELD

Other rare species?

Site Information Overall site quality: ☐ Excellent ☐ Good ☐ Fair ☒ Poor
Current / surrounding land use: AGRICULTURE
Visible disturbances / possible threats:
Comments:

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference) _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)* Slide Print
Plant / animal ☐ ☐
Habitat ☐ ☐
Diagnostic feature ☐ ☐
May we obtain duplicates at our expense? ☐ yes ☐ no

CNAME	SOURCE	SITING_DATE	COMMENTS	X_COORD	Y_COORD
LONG-BILLED CURLEW	URS	2001/2002		-115.45155	33.16998
LONG-BILLED CURLEW	URS	2001/2002		-115.43274	33.18612
LONG-BILLED CURLEW	URS	2001/2002	FLOCK OF 15	-115.45365	33.16777
LONG-BILLED CURLEW	URS	2001/2002	FLOCK OF 15	-115.43965	33.17107
LONG-BILLED CURLEW	URS	2001/2002	FLOCK OF 15	-115.55712	33.17110

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Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work: ____ - ____ - 2001/2002
month (mm) date (dd) year (yyyy)

Scientific Name: Circus cyaneus
Common Name: NORTHERN HARRIER

Species Found? ☒ yes ☐ no _____ If not, why?
Total No. Individuals 2 Subsequent Visit? ☒ yes ☐ no
Is this an existing NDDB occurrence? _____ ☐ no ☒ unk.
Yes, Occ. #
Collection? If yes: _____ _____
Number Museum / Herbarium

Reporter: P. RICHARDS, T. WEBER, H. GREEN
Address: URS CORPORATION
1615 MURRAY CANYON RD. SUITE 1000
SAN DIEGO, CA. 92108
Email Address: _____
Phone: (619) 294-9400

Plant Information
Phenology: _____ % vegetative _____ % flowering _____ % fruiting

Animal Information
Age Structure: 2 # adults _____ # juveniles _____ # unknown
☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location ***(please also attach or draw map on back)***

County: IMPERIAL Landowner / Mgr.: _____
Quad Name: _____ Elevation: _____
T ____ R ____ ____ 1/4 of ____ 1/4 of Section ____ T ____ R ____ ____ 1/4 of ____ 1/4 of Section ____
UTM: Zone: _____ (10, 11) Datum: _____ (NAD83, NAD27, WGS84, other)
Source: _____ (GPS, map & type, etc.) Point Accuracy: _____ Meters
UTM Coordinates _____

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope)*
FORAGING IN AGRICULTURAL FIELD.

Other rare species?

Site Information Overall site quality: ☐ Excellent ☐ Good ☐ Fair ☑ Poor
Current / surrounding land use: AGRICULTURE
Visible disturbances / possible threats:
Comments:

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)* Slide Print
Plant / animal ☐ ☐
Habitat ☐ ☐
Diagnostic feature ☐ ☐
May we obtain duplicates at our expense? ☐ yes ☐ no

CNAME	SOURCE	SITING_DATE	COMMENTS	X_COORD	Y_COORD
NORTHERN HARRIER	URS	2001/2002		-115.65065	33.10685

California Native Species Field Survey Form

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California Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814

Date of Field Work: ____ - ____ - 2001/2002
month (mm) date (dd) year (yyyy)

For Office Use Only

Source Code ________ Quad Code ________
Elm Code ________ Occ. No. ________
EO Index No. ________ Map Index No. ________

Scientific Name: Polioptila caerulea
Common Name: BLUE-GRAY GNATCATCHER

Species Found? ☒ yes ☐ no ________ If not, why?

Total No. Individuals ________ Subsequent Visit? ☐ yes ☐ no

Is this an existing NDDB occurrence? ______ Yes, Occ. # ☐ no ☒ unk.

Collection? If yes: ________ Number ________ Museum / Herbarium

Reporter: P. RICHARDS, B. LOHSTROH, H. GREEN
Address: URS CORPORATION 1615 MURRAY CANYON RD. SUITE 1000
SAN DIEGO, CA 92108

Email Address: ________
Phone: (619) 294-9400

Plant Information

Phenology: ____ % vegetative ____ % flowering ____ % fruiting

Animal Information

Age Structure: ____ # adults ____ # juveniles ____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location (please also attach or draw map on back)

County: IMPERIAL Landowner / Mgr.: ________

Quad Name: ________ Elevation: ________

T ____ R ____ ____ 1/4 of ____ 1/4 of Section ____ T ____ R ____ ____ 1/4 of ____ 1/4 of Section ____

UTM: Zone: ________ (10, 11) Datum: ________ (NAD83, NAD27, WGS84, other)

Source: ________ (GPS, map & type, etc.) Point Accuracy: ________ Meters

UTM Coordinates ________

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope)

Other rare species?

Site Information

Overall site quality: ☐ Excellent ☐ Good ☒ Fair ☐ Poor

Current / surrounding land use: AGRICULTURE

Visible disturbances / possible threats:

Comments:

Determination: (check one or more, and fill in blanks)

- ☐ Keyed (cite reference) ________
- ☐ Compared with specimen housed at: ________
- ☐ Compared with photo / drawing in: ________
- ☐ By another person (name): ________
- ☐ Other: ________

Photographs: (check one or more)

	Slide	Print
Plant / animal	☐	☐
Habitat	☐	☐
Diagnostic feature	☐	☐

May we obtain duplicates at our expense? ☐ yes ☐ no

CNAME	SOURCE	SITING_DATE	COMMENTS	X_COORD	Y_COORD
BLUE-GRAY GNATCATCHER	URS	2001/2002		-115.73177	33.05280
BLUE-GRAY GNATCATCHER	URS	2001/2002		-115.74815	33.04654

JURISDICTIONAL DELINEATION REPORT

SALTON SEA UNIT 6
CALIPATRIA, CALIFORNIA

PREPARED FOR

CE OBSIDIAN ENERGY LLC

URS PROJECT NO. 58-00161046.03 00800

JULY 11, 2002

JURISDICTIONAL DELINEATION REPORT

SALTON SEA UNIT 6 GEOTHERMAL POWER PLANT CALIPATRIA, CALIFORNIA

Prepared for

CE Obsidian Energy LLC
7030 Gentry Road
Calipatria, CA 92233

URS Project No. 58-00161046.03 00800

July 11, 2002

URS

1615 Murray Canyon Road, Suite 1000
San Diego, CA 92108-4314
619-294-9400 Fax: 619-293-7920

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Figures

Appendices

1.1 PROJECT DESCRIPTION

The Salton Sea Unit 6 geothermal power plant (SSU6) is a proposed, nominally rated 185-megawatt (MW) net plant to be located on approximately 80 acres within a 160-acre parcel approximately 1,000 feet southeast of the Salton Sea in Imperial County. The SSU6 plant site would incorporate a turbine generator area, resource production facility, separation/brine clarification area, electrical/control building area, cooling towers, filter press, electrical switchyard, brine pond, water pond and power generation facility rain water run off basin, emissions control equipment, parking area, and a construction lay-down area. In addition to the plant site, ten production wells on five well pads, seven injection wells on three well pads, and two plant wells on two existing well pads would be located near the plant site, along with pipelines connecting them to the plant site. A 500-foot water supply pipeline would connect the plant site with an existing water supply canal, pass under Boyle Road and run along the southern boundary of the plant site.

The proposed interconnection of the facility to the Imperial Irrigation District's (IID's) existing transmission system would be via a new substation south of McKendry Road and east of Severe Road. A 16-mile, double-circuit transmission line, which would be built at 230 kV but operated at 161 kV (L-Line Interconnection), would be constructed to the south to connect the new substation to the existing L-Line, located southwest of Highway 86 and Bannister Road. This proposed transmission line would run through approximately 2.8 miles of BLM land before connecting to the L-Line. The L-Line eventually connects to IID's existing El Centro and Avenue 58 substations. Additionally, a 15-mile, single-circuit transmission interconnection line (IID Midway Interconnection), which would be built at 230 kV but operated at 161 kV, would be constructed to the east to connect the new substation to the existing Midway 230 kV substation east of the proposed plant site. The 230 kV Midway substation would have a 161 kV line termination, a 161 kV breaker, and a 161/230 kV transformer installed for connection of this proposed transmission line.

The area around the proposed SSU6 is used primarily for agriculture and geothermal purposes. The project site is within Imperial County's Geothermal Overlay Zone, which consists of approximately 111,444 acres of land identified as suitable for geothermal power production. The town of Calipatria is a little over 6 miles southeast of the project site, and the town of Niland is approximately 7.5 miles to the northeast. The Sonny Bono Salton Sea National Wildlife Refuge (Refuge) is immediately northeast of Production Well Pad OB1 (Figure 1).

Construction of a pipeline between Production Well Pad OB3 and the power plant site would affect wetlands over which the U.S. Army Corps of Engineers (Corps or ACOE) has jurisdiction pursuant to Section 404 of the Clean Water Act. Placing Production Well Pad OB3 on Obsidian Butte requires widening of the access road to Obsidian Butte to accommodate the transportation of drill rigs to the well pad, and construction of a pipeline connecting wells on OB3 to the plant. The pipeline supports would be placed on the south side of the widened road (Figures 2 and 3).

The access road to Obsidian Butte is used to provide service to a gravel pit on Obsidian Butte. The road is approximately ten feet wide, and varies along its length. To provide a route for the drilling rigs that would be required to construct the two production wells on Obsidian Butte, the road would be widened by approximately 15 feet, providing a 25-foot wide road surface. The widening would occur along the south side of the existing road with standard civil construction equipment, including dump trucks, bulldozers, compacting machines and grading machines.

Installation of the pipeline would require installing approximately 20 pipe supports along the 600-foot distance (one support every 30 feet). The pipe supports would be 12 feet wide and would be constructed of steel. Each support would be elevated above grade and supported by two piles, each approximately 14 inches in diameter. One of each pair of piles would be driven along the road slope and the other driven directly in the water. Construction of the pipeline would require cranes, a pile driving machine, forklifts, welding machines and small trucks.

The pipeline that carries brine over the wetlands would be concrete-lined carbon steel and would be contained within a second, outer carbon steel pipeline. The chamber between the inner and outer pipes would be monitored to detect a potential leak in the inner brine-carrying pipe. The outer carbon steel pipe would be designed to contain brine that might leak from within the inner pipe before the inner pipe could be shut down, at which time brine collected in the outer pipe would be bled off and disposed of properly. A four-inch carbon steel pipe would run from the east end of the pipeline bridge to the brine pond at the power generation facility. The purpose of this four-inch pipe would be to dispose of brine that leaked from the inner pipe into the chamber between it and the outer pipe.

Once operational, the brine pipeline would be subject to Nondestructive Examination (NDE) monitoring. NDE monitoring uses a transducer that transmits and receives an ultrasonic signal, gives the NDE technician a display of the wall thickness of the pipe on a liquid crystal display, and stores the data digitally for archiving and analysis. (The frequency range of the transducers is 2.25 megahertz to 10 megahertz. These signals will not travel in air, can be introduced only into the pipe through the use of the ultrasonic couplant, and are contained within the localized entry site.) The transducer will access the inner pipe through boroscopic windows (closed during normal operation) approximately every 50 feet in the outer pipe. Through NDE monitoring, thinning areas of the piping system can be detected and "mapped" for analysis. A pipe can be replaced as it reaches minimum allowable operating thickness, while areas with remaining useful life continue to be monitored for corrosion. Corrosion rates have been determined through past inspections and data comparison.

Currently, guided wave ultrasonics and electromagnetic acoustic transmission (EMAT) are being jointly researched by the Brookhaven National Laboratory and CalEnergy Operating Company (CEOC), an affiliate of CE Obsidian Energy LLC (CEOE), and may be incorporated into the inspection plan. Both of these new methods are intended to enhance the current program by increasing defect detectability, and increasing the data acquisition rate.

CEOE also will have in place, before pipeline construction is begun, emergency response/contingency plans addressing identification, notification, and containment to guide employee actions in the event of a leak.

1.2 PROJECT NEED

The proposed project will help meet future energy demands of Imperial County and continue to diversify energy sources in southern California. The project would use geothermal energy that would be available 24 hours per day, 365 days per year, and would have an average availability of 95 percent or higher, compared with 60 to 70 percent for coal and nuclear power plants (EREN web site). The output of the facility has already been contracted by IID, which would ensure the purchase and use of the energy. By providing clean, efficient power using renewable

geothermal resources in the first quarter of 2005, the SSU6 will help to fulfill the long-term energy needs of California.

This report addresses potential impacts to "waters of the United States" resulting from the proposed project and mitigation measures to reduce these impacts to below a level of significance. The term "waters of the U.S." covers many types of waters, including waters currently or historically used in interstate or foreign commerce, including all waters subject to the ebb and flow of tides; all interstate waters, including interstate wetlands; all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, etc., the use, degradation, or destruction of which could affect interstate or foreign commerce; all impoundments of waters otherwise defined as waters of the U.S.; tributaries of waters of the U.S.; territorial seas; and wetlands adjacent to waters of the U.S. (ACOE, 1987). A formal wetland delineation conducted according to California Department of Fish and Game (CDFG) and Corps protocols is provided.

2.1 INTRODUCTION

The Corps, through the authority of Section 404 of the Clean Water Act, is the primary agency involved in wetland regulation. The Environmental Protection Agency (EPA) has the authority to veto any decision by the Corps on Section 404 permit issuance, as the EPA has the ultimate authority over enforcement of wetland regulations. Before the issuance of a Section 404 permit by the Corps, the Regional Water Quality Control Board (RWQCB) must issue a Section 401 water quality certification or waiver. In this way, the RWQCB regulates actions permitted by the Corps under Section 404 of the Clean Water Act. Additionally, the Corps must consult with the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the federal Endangered Species Act (ESA) if wetland impacts may adversely affect federally listed species. The Corps has jurisdiction over "waters of the U.S." under Section 404.

The CDFG also has jurisdiction over lakes, rivers, and streams pursuant to Section 1603 of the California Fish and Game Code. Jurisdiction extends across the beds, banks, and channels of these features and includes areas beneath a riparian canopy, even if the canopy areas are well away from the stream channel (such as in oak riparian areas). More typically, the jurisdiction over streambeds is applied from the top of one channel bank to the top of the opposite bank.

2.2 METHODS

URS Corporation (URS) used methodology for delineating federal wetlands as set forth by the Corps in its Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest (June 2001) and the Corps of Engineers Wetlands Delineation Manual (1987). The routine onsite determination method can be used to gather field data at potential wetland areas for most projects. Visual observations of vegetation types and/or hydrology are used to locate areas for evaluation. At each evaluation area, several parameters are considered to determine whether the sample point is within a wetland. Three criteria must be fulfilled to classify an area as a jurisdictional Corps wetland: (1) the presence of hydrophytic vegetation, (2) the presence of hydric soils, and (3) the presence of wetland hydrology. Details of the application of these techniques are described below.

2.2.1 Hydrophytic Vegetation

The hydrophytic vegetation criterion is satisfied at a location if greater than 50 percent of all dominant species within the vegetation unit have a wetland indicator status of obligate (OBL), facultative wetland (FACW), or facultative (FAC) (ACOE, 1987). An OBL indicator status refers to plants that have a 99 percent probability of occurring in wetlands under natural conditions. A FACW indicator status refers to plants that usually occur in wetlands (67 to 99 percent probability) but are occasionally found in non-wetlands. A FAC indicator status refers to plants that are equally likely to occur in wetlands or non-wetlands (an estimated probability of 34 to 66 percent). Wetland indicator status used for this report follows those of the National List of Plant Species that Occur in Wetlands: California (Region 0) (Reed, 1988).

2.2.2 Hydric Soils

The hydric soil criterion is satisfied at a location if area soils can be inferred or observed to have a high groundwater table, if there is evidence of prolonged soil saturation, or if there are any indicators suggesting a long-term reducing environment in the upper 18 inches of the soil profile. Reducing conditions are most easily assessed using soil color. Soil colors were evaluated using the Munsell Soil Color Charts (Munsell Color, 1994).

2.2.3 Wetland Hydrology

The wetland hydrology criterion is satisfied at a location based on conclusions inferred from field observations, which indicate that an area has a high probability of being inundated or saturated (flooded, ponded, or tidally influenced) long enough during the growing season to develop anaerobic conditions in the surface soil environment, especially the root zone (ACOE, 1987).

Areas meeting all three of these parameters would be designated as Corps-jurisdictional wetlands. If the delineator cannot confirm the presence of all three parameters but nevertheless strongly believes the area to be a wetland, supporting arguments can be added to the delineation data sheet or report.

CDFG jurisdiction was assessed for all on-site, potentially jurisdictional areas. The methodology for calculating the area of CDFG jurisdiction was assessed by measuring the width of the defined channel taken from bank to bank.

A jurisdictional delineation was performed per Corps and CDFG protocol by URS biologists Heather Green and Phillip Richards on November 15 and 20, 2001. Several Corps-jurisdictional areas were detected from this delineation. Areas found to be under Corps jurisdiction are also under CDFG jurisdiction. The jurisdictional boundaries were mapped onto aerial photographs in the field. Jurisdictional resources were digitized, and the jurisdictional acreage was subsequently calculated. Wetland delineation points were selected to be representative of each distinct plant community type near the project that might occur in a wetland. In accordance with Corps procedures for delineating wetlands, hydrophytic vegetation was identified, presence or absence of hydrology was noted, and soil samples were taken in potential wetland areas. Mapping was completed on aerial photographs (1 inch = 100 feet). Data sheets for the wetland determinations are provided in Appendix A. Photographs were taken and are provided in Appendix B.

2.2.4 On Site Physiogeography

Corps and CDFG wetlands were identified during the November 15, 2001, visit to the project site. SSU6 would be placed within an existing agricultural field, and all production wells and injection wells would be placed within upland habitat. The plant site and production wells are within several thousand feet of the Salton Sea (Figure 1). The Salton Sea and associated wetlands are adjacent to the proposed road widening/pipeline crossing area.

2.2.5 Vegetation

Vegetation associated with the pipeline crossing from the plant site to Production Well Pad OB3 is dominated by open water associated with the Salton Sea (Figure 2). There are several areas of brackish water marsh, which is dominated by wide-leaved cattail (*Typha latifolia*) and common reed (*Phragmites australis*). Brackish water marsh in this area is assumed to be jurisdictional, as all vegetation within these areas displayed OBL plant species. Large areas of desert saltbush scrub adjacent to the ponded areas are dominated by saltbush (*Atriplex canescens*). Tamarisk scrub dominates the westernmost portion of the area, where the pipeline will cross riparian habitat. The dominant species within this habitat type is tamarisk (*Tamarix ramosissima*).

2.2.6 Hydrology

Substantial signs of hydrology were not detected in the surveyed area. Both test pits passed the "FAC-Neutral" test, but because two secondary indicators of wetland hydrology must be observed, it was determined that there was no wetland hydrology in these areas. There is low probability of these areas being inundated or saturated long enough during the growing season to develop anaerobic conditions in the surface soil environment.

2.2.7 Soils

According to the Soil Survey for Imperial County, California, conducted by the United States Department of Agriculture, Soil Conservation Service and Forest Service (issued December 1973), soils associated with the project area consist of the following types:

Torriorthents-Rock outcrop complex, 5 to 60 percent slopes. This complex consists of about 20 percent volcanic rock outcrop and 80 percent soil material that has little or no profile development. The Torriorthents are excessively drained, loam to loamy sand soils, with 15 to 35 percent rock fragments, formed in unconsolidated materials. These soils range from very shallow on the upper slopes to several feet deep on the toe slopes. Most of these areas are more than 60 inches deep. This type of soil was within Test Pit 1, which is adjacent to the proposed fill of jurisdictional waters of the U.S. This soil is not typically known to be hydric.

Holtville silty clay, wet. Nearly level, very deep, stratified soil formed in alluvial sediment on floodplains and alluvial basin floors. Irrigation has caused a perched water table at a depth of 36 to 60 inches, and the water table can rise to within 18 inches of the surface during periods of heavy irrigation. Soil is light brown silty clay from 0 to 17 inches, light brown to very pale brown silty clay and silt loam from 17 to 18 inches, and very pale brown loamy very fine sand from 18 to 60 inches, with sandy material below 60 inches in some areas. This type of soil was within Test Pit 2, which was dug at the northeast edge of where Production Well Pad OB1 is proposed. This soil is not typically known to be hydric.

2.2.8 Results and Discussion

Based on the jurisdictional delineation performed on November 15 and 20, 2001, the area that will be filled is composed of the following wetland resources: 0.05 acres of brackish marsh, 0.03 acres of other waters of the U.S. in the form of open water, and 0.02 acres of desert sink

scrub, for a total of 0.1 acres under Corps jurisdiction. A total of 0.4 acres is under CDFG jurisdiction, which includes the previously mentioned vegetation types and an additional 0.3 acres of impact to tamarisk scrub. Two test pits were dug along the proposed pipeline alignment within potentially jurisdictional areas.

Test Pit 1 was dug within tamarisk scrub habitat adjacent to the existing dirt road/levee to Obsidian Butte (Figure 2). Vegetation surrounding the soil pit included tamarisk (*Tamarix ramossisima*, FACW) and pickleweed (*Salicornia virginica*, OBL). Soil within this pit was 7.5YR 4/3, which is not indicative of hydric soil. There was a large amount of pumice (40 to 50 percent) within the soil pit throughout the soil. This is indicative of Torriorthents-Rock outcrop complex, which is the soil type within the area of this pit. These soils are excessively drained, loam to loamy sand soils, which are not hydric. The area surrounding this pit did not show any indicators of hydrology. The area surrounding this pit is not considered a Corps-jurisdictional wetland but is considered jurisdictional by the CDFG. The corresponding wetland data sheet is included in Appendix A.

Test Pit 2 was dug within an earthen drainage ditch adjacent to an existing agricultural field within Refuge property (Figure 2). Vegetation surrounding this pit included four-wing saltbush (*Atriplex canescens*, FACU), tamarisk (*Tamarix ramossisima*, FACW), and desert mallow (*Malvella leprosa*, FAC+). Soil within this pit was 7.5YR 4/3, which is not indicative of a hydric soil. Additionally, the pit was dug within Holtville silty clay, which has a perched water table but is not indicative of hydric soil. The area surrounding this pit did not indicate any indicators of wetland hydrology. Hydrology in this area may be influenced by agricultural runoff. The area surrounding this pit is not considered a Corps-jurisdictional wetland but is considered jurisdictional by the CDFG.

Other waters of the U.S. in the form of open water associated with the Salton Sea were also detected on site. These areas are both Corps and CDFG-jurisdictional. The ordinary high water marks in these areas were approximately 6 inches. The project will fill approximately 0.03 acres of other waters of the U.S. in the form of open water habitat.

Brackish water marsh within the project area is also Corps-jurisdictional, as it has only OBL wetland plant species and is therefore assumed to be a wetland. Brackish water marsh and saltbush scrub are also CDFG-jurisdictional. The project will fill approximately 0.05 acres of brackish water marsh.

2.3 PERMITTING

Any project impacts to jurisdictional wetlands will require a Corps permit pursuant to Section 404 of the Clean Water Act. The project also will be required to obtain a Streambed Alteration Agreement, pursuant to Section 1603 of the California Fish and Game Code. Coordination will also occur with the USFWS pursuant to Section 7 of the federal ESA, and with CDFG pursuant to Section 2080.1 or 2081 of the California Endangered Species Act.

2.4 MITIGATION

Impacts to 0.05 acres of brackish marsh, 0.03 acres of other waters of the U.S., 0.02 acres of desert sink scrub, and 0.33 acres of tamarisk scrub will be mitigated through the creation or enhancement of wetland habitat near the project.

CEOE proposes to provide or cause to be provided a suitable mitigation site where wetlands creation or enhancement can be conducted to mitigate the proposed loss of wetland resources at a mitigation ratio of 2:1 for a total of approximately 0.8 acres of habitat.

3.1 LEGAL STANDARD

No fill of waters of the U.S. is permitted if there is a "practicable alternative" to the proposed project that would have a less adverse effect on the aquatic system, as long as the alternative does not have other significant adverse environmental consequences (40 CFR 230.10 [a]). An alternative is "practicable" if it "is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes" (40 CFR 230.10[a]; 230.10[a][2]). Areas not currently controlled or owned by the applicant but that "could reasonably be obtained" may be considered to analyze potential project alternatives (40 CFR 230.10[a]; 230.10[a][2]).

URS and CEOE have analyzed the following alternative alignments for the proposed pipeline crossing for the SSU6 project to accomplish a comprehensive alternatives analysis consistent with Section 404 (b)(1) of the Clean Water Act.

The purpose and need for the proposed pipeline crossing is to transport brine from proposed Production Well Pad OB3 to the proposed SSU6 energy facility for use as geothermal energy. The purpose and need for the proposed road widening is to allow drill rigs access to Production Well Pad OB3. To accomplish these actions, it is necessary to cross areas of jurisdictional waters of the U.S.

3.2 ALTERNATIVES

3.2.1 Alternative 1 – Underground Pipe Alternative

As an alternative to the proposed alignment of the pipeline from Production Well Pad OB3 to the plant site shown on Figure 1, burying the pipeline in the existing road was evaluated.

3.2.1.1 Wetland Impact

The pipe support requires at least 16 feet in width when buried under a road, as defined in Section C of Drawing No. 22-024-CV-SK003 "Obsidian Butte Road Improvement and Pipe Way Detail," shown in Appendix C. The existing road across the section currently is a minimum width of 10 feet, and would have to be widened by 10 feet to contain the piping structure and maintain sufficient cover.

To support the equipment required to install, operate, and maintain buried piping, the existing road would have to be widened by 25 feet, as shown in Section A of the same drawing, instead of the 15 feet required for the proposed action.

3.2.1.2 Operation, Maintenance, and Safety Impact

Because of the corrosive nature of the brine, NDE monitoring, as described in Section 1.1, is performed regularly at nearby geothermal facilities owned by CEOE affiliates to confirm pipe integrity. Such testing requires easy access to the structures, thereby requiring buried piping to be limited in length to the shortest possible distance (for road crossings, for instance). A design contemplating the burial of concrete-lined carbon steel pipe along 600 feet or more would be unacceptable from operational, maintenance, and safety standpoints.

3.2.1.3 Cost Impact

This alternative would require approximately twice the amount of fill material to widen the road and bury the pipeline, resulting in an estimated additional installed cost of $250,000. The additional cost of creating a concrete channel to bury the pipeline would offset the cost of the piping supports included in the preferred alternative. This alternative, therefore, would cost approximately $250,000 more than the preferred action.

3.2.2 Alternative 2 – Alternative Pipe Route

As an alternative to the proposed alignment of the pipeline from Production Well Pad OB3 to the plant site as shown on Figure 1, rerouting the geothermal fluid conveyance pipeline has been evaluated. Under this alternative, the proposed geothermal fluid conveyance pipeline would be routed toward the southwest, in the direction of the existing levee, which runs from north to south from Obsidian Butte to Grubel/Peterson Road. The pipeline would then follow the edge of this levee and turn east onto Grubel/Peterson Road, on the southern side of the road, within agricultural land. The pipeline would then turn north, along the eastern side of Severe Road, and terminate at the power plant site.

3.2.2.1 Wetland Impact

This alternative would require 3,500 more feet of piping than the preferred action, which includes a 1,500-foot pipeline. This alternative also would result in impacts to 0.45 acres of waters of the U.S, compared to the preferred action's impact to .10 acres of Corps-jurisdictional waters.

3.2.2.2 Sensitive Species

Because this alternative would affect a larger area of open waters of the U.S., it has potential to affect an area potentially suitable for desert pupfish. Under this alternative, the pipeline also would be adjacent to a drainage ditch with potential Yuma clapper rail habitat.

3.2.2.3 Cost Impact

Approximately 3,500 additional feet of piping would be required for this alternative, which would result in an additional cost of $1.76 million for the pipeline itself. There also would be additional costs associated with increased fill material, loss of heat during transfer because of the extra length of the pipeline, and a greater potential for repair and maintenance.

3.2.3 Alternative 3 – No Action Alternative

The No Action Alternative represents the "status quo" condition – no geothermal power plant project. The No Action Alternative is considered impractical and infeasible for several reasons associated with economics, public interest, and sensitive species habitat.

Economics and Public Interest

Failure to collect geothermal fluid in the reserve on Obsidian Butte from Production Well Pad OB3 would substantially restrict geothermal energy production capacity to the proposed plant, thereby making it impracticable and infeasible.

The project as proposed incorporates the only layout that is feasible and practicable for the generation of geothermal energy from the Salton Sea Geothermal Field ("Field"). The proposed wellfield and plant site layout provides the required energy production using the available acreage, at the closest spacing possible without undue interference between wells, while sustaining production over the life of the project.

The Salton Sea Field is bisected by a main fault that runs west-southwest to east-northeast. The fault is illustrated on Figure 3. Brine temperatures become cooler south of the fault and cannot support geothermal energy production. Wells that gather the hot brine from which electricity is generated (production wells) are therefore located north of the fault. Wells that inject the spent brine back into the ground (injection wells) are located south of the fault.

Wells are sited to ensure responsible use and management of the geothermal resource. Proper distance must be maintained between production areas to ensure that the production wells receive adequate pressure support to maintain their productivity. Similarly, production and injection areas must be properly spaced. For instance, in the western portion of the Field, production and injection occur close together because the fault is considered a sealing fault, or diffusion boundary. East of this portion of the Field, the fault is not considered a sealing fault, so additional distance is needed between production and injection wells. Additionally, injection and production must be planned so that injection occurs at a structurally lower level than production, as gravity will work to force the heavier, cooler fluids under the hotter, less dense fluids to heat before proceeding to the production wells, preventing premature breakthrough. The drainage areas and injection areas for the existing power plants are shown on Figure 3, as are existing condensate and/or pond injection areas.

The general principles used in locating the wells for SSU6 were as follows:

1. Production wells would be located north of the main fault.
2. Development would be as close to the main fault as possible.
3. Separation would be maintained between production and injection wells to prevent premature breakthrough of injection fluids.
4. Production wells would be spaced to prevent any decline in the production rates for existing geothermal plants.
5. Wells would be spaced to ensure adequate resource to support required production rates for the life of the proposed project. Only two wells would be allowed per pad to prevent/limit interference between wells at the casing shoe. Well pads would have adequate distance between them to prevent interference.

Individual Well Pad Locations

OB5 (Pad L), with wells 18-33 and 18-33b, will fully develop an undeveloped area between Regions I and II that is not in the primary drainage area of any currently producing wells. With both Regions I and II production wells pulling on this area, it is critical not to overdevelop it.

OB4 (Pad C, on the plant site), with wells 16-33 and 16-33b, will drain remaining undeveloped area between Regions I and II and the area just off the northwestern edge of Region II.

OB2 (Pad J, just north of the plant site), with wells 24-33 and 13-33, will drain the area just off the northern edge of Region II.

The above wells are all adjacent to existing plant wellfields. Reservoir modeling has determined that bringing these wells any closer to the existing plants or additional new project wells would severely affect the decline rates of existing wells and new project wells. Additional resource must therefore come from a second tier of wells located farther from existing production.

The four remaining wells are drilled from pads located farther outside the first tier of target zones, to allow the reach of the wells to extend far enough to avoid interference with the drainage areas of other wells.

OB1 (Pad N, northeast of Pad J), with wells 43-33 and 42-33, will drain acreage that is critical to providing the proper amount of resource to support the proposed plant.

OB3 (Pad I, on Obsidian Butte), with wells 55-32 and 55-32b, is sited to allow drilling at a sufficient distance from existing production areas. It would be impossible to reach west beyond the drainage area of wells 16-33 or 16-33b without placing a well pad on Obsidian Butte. Draining this acreage is critical to having the proper amount of resource to support the proposed plant.

The injection area was sited south of the main fault and at an adequate distance from existing or new production wells, in an area that would not be considered for production yet is close enough to give pressure support. While the development of the SSU6 wellfield northwest of Region II lowers the pressure support to Region II, the addition of the additional SSU6 injection to the southeast will increase pressure support to the existing Region II, balancing the pressure support lost from the new northwest production development.

While Figure 4 shows graphically the basic interaction of the drainage areas of the wells, it is a simplification of the reservoir dynamics. Reservoir properties vary in lateral distance and depth, and are interdependent. The reservoir properties and response of production of the Field have been mathematically modeled and history matched to existing data from over 10 years of production. The layout of the proposed SSU6 has been entered into this numerical model to forecast its effect on the reservoir and existing wellfields over the life of the plant. Location, spacing, production rates, and pressure support have been balanced to provide the optimum wellfield for SSU6 using the above criteria.

Failure to construct the proposed project would not be in the public interest, because it would not result in new electricity generation from a renewable source and would not result in projected economic benefit to the area. CEOE estimates that the project would provide approximately $3 million per year in property taxes. Under the current assessment method, this money would accrue to Imperial County and be distributed among several funds, including local schools.

There would be approximately 449 professional workers employed during peak construction. Approximately 69 permanent employees are expected to staff the plant after its completion with an associated annual payroll of $6 million.

CEOC has entered a 20-year power sale agreement with IID for approximately 93 percent of the design output of the facility. The proposed geothermal facility will effectively protect approximately one fifth of IID's portfolio from fuel price fluctuations while providing a reliable and renewable energy source to the community.

3.2.3.1 Sensitive Species and Habitat

Under the No Action Alternative, existing land uses, including agricultural production, would remain on site. Any potential impacts to sensitive species and habitat associated with the proposed project would not occur.

3.3 CONCLUSION

The preferred action is superior to the other alternatives because it results in the least amount of wetland and sensitive species impacts and is preferable based on operation and maintenance, safety, and economic factors. Therefore, URS recommends the proposed action presented in Drawing Nos. 22-024-CV-SK003 and -SK004, "Obsidian Butte Road Improvement and Pipeway Detail" described in the project description and shown in Appendix C.

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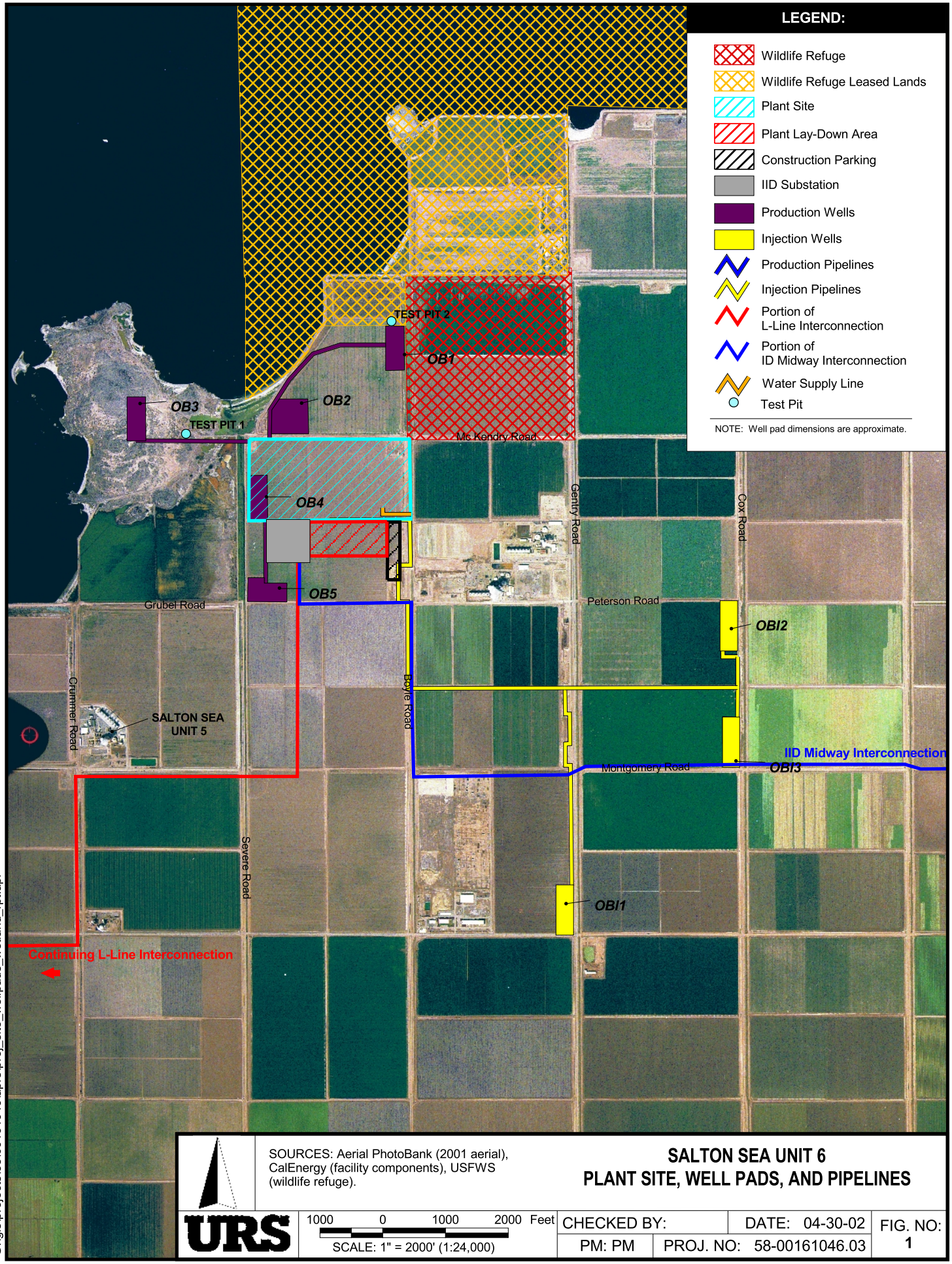
United States Army Corps of Engineers, 1987. "Wetland Delineation Manual."

U.S. Department of Agriculture, Soil Conservation Service, 1981. "Soil Survey of Imperial County California, Imperial Valley Area."

Wetland Training Institute, Inc., 1989. "Field Guide for Delineating Wetlands: Unified Federal Method." WTI 89-1. 131 pp.

Wetland Training Institute, Inc., 1995. "Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual." Poolesville, Maryland. WTI 95-3.



SOURCES: Aerial PhotoBank (2001 aerial), CalEnergy (facility components), USFWS (wildlife refuge).

SALTON SEA UNIT 6
PLANT SITE, WELL PADS, AND PIPELINES

URS

1000 0 1000 2000 Feet

SCALE: 1" = 2000' (1:24,000)

CHECKED BY:	DATE: 04-30-02	FIG. NO: 1
PM: PM	PROJ. NO: 58-00161046.03	

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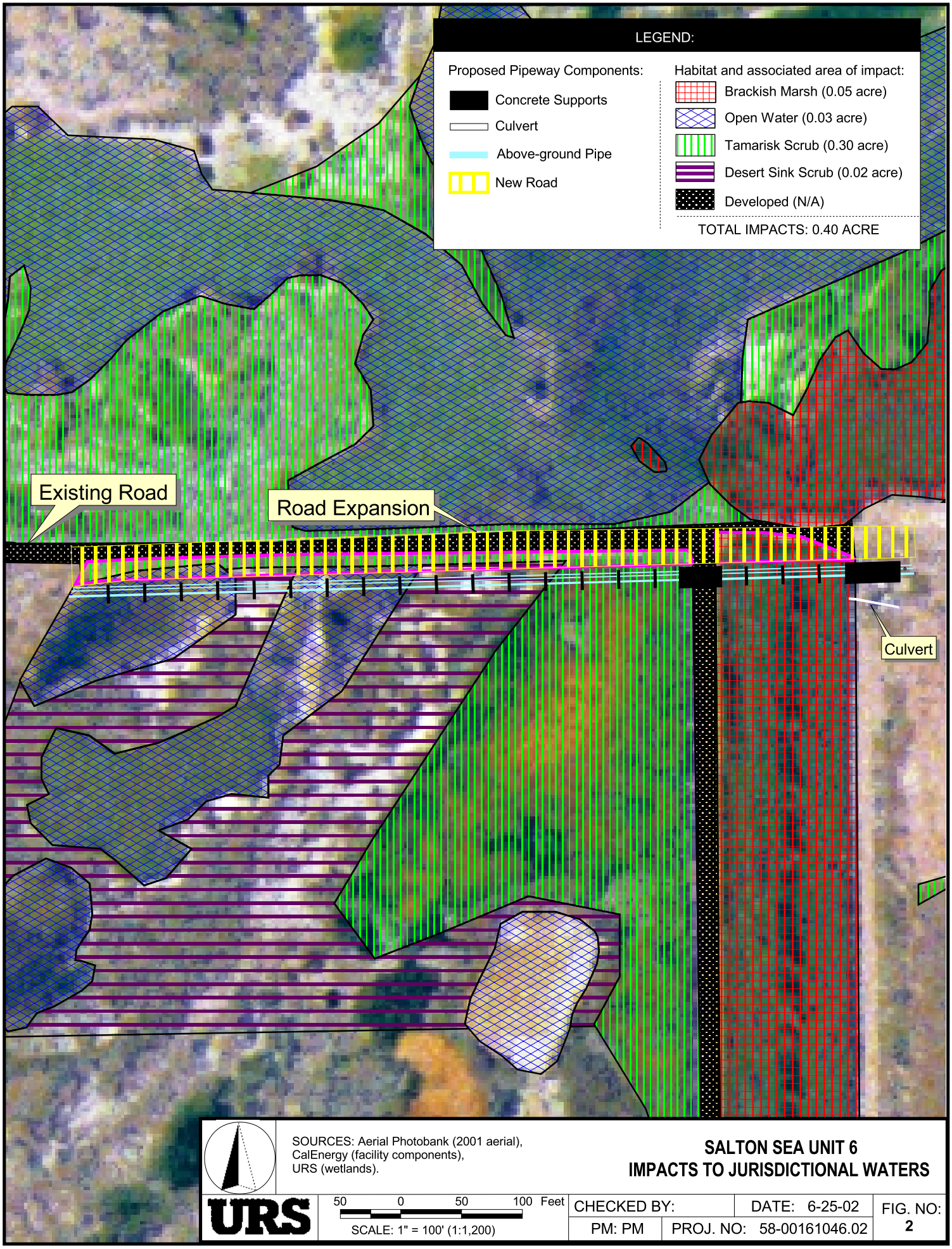

SOURCES: Aerial Photobank (2001 aerial), CalEnergy (facility components), URS (wetlands).

SALTON SEA UNIT 6
IMPACTS TO JURISDICTIONAL WATERS

URS

50 0 50 100 Feet

SCALE: 1" = 100' (1:1,200)

CHECKED BY:	DATE: 6-25-02	FIG. NO: 2
PM: PM	PROJ. NO: 58-00161046.02	

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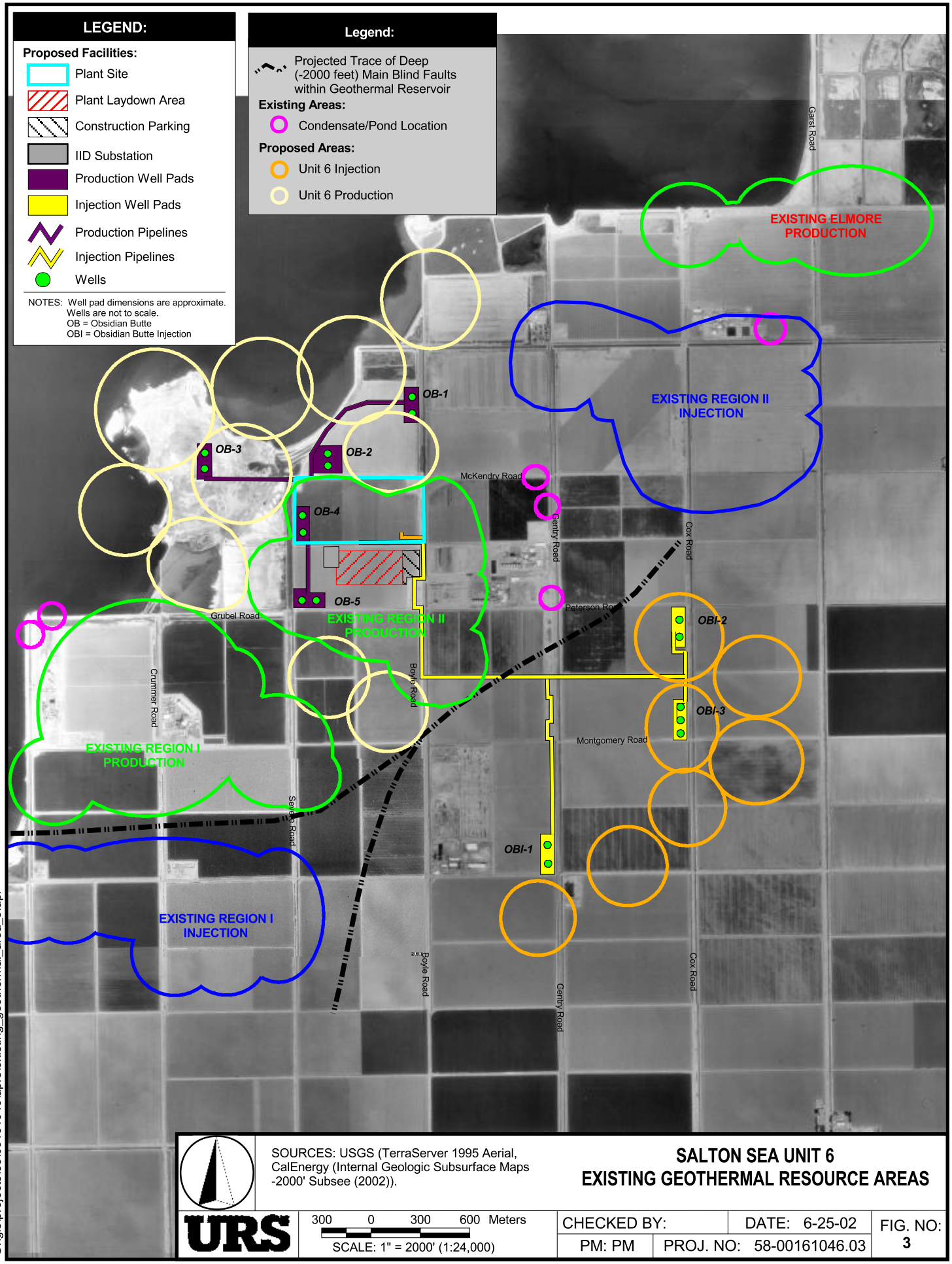
LEGEND:
Proposed Facilities:
Plant Site
Plant Laydown Area
Construction Parking
IID Substation
Production Well Pads
Injection Well Pads
Production Pipelines
Injection Pipelines
Wells
NOTES: Well pad dimensions are approximate.
Wells are not to scale.
OB = Obsidian Butte
OBI = Obsidian Butte Injection
Legend:
Projected Trace of Deep (-2000 feet) Main Blind Faults within Geothermal Reservoir
Existing Areas:
Condensate/Pond Location
Proposed Areas:
Unit 6 Injection
Unit 6 Production
EXISTING ELMORE PRODUCTION
EXISTING REGION II INJECTION
EXISTING REGION II PRODUCTION
EXISTING REGION I PRODUCTION
EXISTING REGION I INJECTION
OB-1
OB-2
OB-3
OB-4
OB-5
OBI-1
OBI-2
OBI-3
Garst Road
McKendry Road
Gentry Road
Cox Road
Peterson Road
Grubel Road
Crummer Road
Boyle Road
Montgomery Road
Sentous Road
SOURCES: USGS (TerraServer 1995 Aerial, CalEnergy (Internal Geologic Subsurface Maps -2000' Subsee (2002)).
SALTON SEA UNIT 6
EXISTING GEOTHERMAL RESOURCE AREAS
URS
300 0 300 600 Meters
SCALE: 1" = 2000' (1:24,000)
CHECKED BY:
DATE: 6-25-02
PM: PM
PROJ. NO: 58-00161046.03
FIG. NO: 3
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ATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site Salton Sea "6"			Date 11/15/01
Applicant / Owner Cal Energy/Mid American			County Imperial
Investigator HG, PR			State CA
Do Normal Circumstances exist on the site?	YES	NO	Community ID
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID
Is the area a potential Problem Area? (If needed, explain on reverse)	YES	NO	Plot ID TEST PIT 1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 Tamarisk ramossisima	S	Fac wet	9		
2 Salicornia virginica	S	Obl	10		
3			11		
4			12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-) 100 %

Remarks

~10-50% Pumice in pit

HYDROLOGY

- [x] Recorded Data (Describe in Remarks)
  - [ ] Stream, Lake, or Tide Gauge
  - [x] Aerial Photographs
  - [ ] Other
- [ ] No Recorded Data Available

FIELD OBSERVATIONS

Depth of Surface Water	N/A	(in)
Depth to Free Water in Pit	N/A	(in)
Depth to Saturated Soil	N/A	(in)

WETLAND HYDROLOGY INDICATORS

Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more Required):
- [ ] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [ ] Local Soil Survey Data
- [x] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

ILS

ap Unit Name (Series and Phase): TORRIORTHENTS ROCK OUTCROP COMPLEX | Drainage Class: EX. DRAINED

axonomy (Subgroup) | Field Observations Confirm Mapped Type? (YES) NO

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	A	7.5YR 4/3	N/A	N/A	50% Pumice

HYDRIC SOIL INDICATORS:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

marks:
40% - 50% PUMICE IN SOIL

TLAND DETERMINATION

drophytic Vegetation Present?	(YES) NO	Is this Sampling Point Within a Wetland? YES (NO)
tland Hydrology Present?	YES (NO)	
lric Soils Present?	YES (NO)	

narks
0% - 50% PUMICE IN SOIL.

ATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site SALTON SEA 6 / OB1 Well Pad		Date 11/20/01
Applicant / Owner CAL ENERGY / MIDAMERICAN		County IMPERIAL
Investigator P. RICHARDS, H. GREEN		State CA
Do Normal Circumstances exist on the site?	YES (NO)	Community ID
Is the site significantly disturbed (Atypical Situation)?	YES NO	Transect ID
Is the area a potential Problem Area? (If needed, explain on reverse)	YES NO	Plot ID TEST PIT 2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 ATRIPLEX CANESCENS	S	FACU	9		
2 TAMARIX RAMOS.	S	FACW	10		
3 MALVACAE - MALVELLA LEPROSA	H	FAC+	11		
4			12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-) 67%

Remarks

HYDROLOGY

- [X] Recorded Data (Describe in Remarks)
  - [ ] Stream, Lake, or Tide Gauge
  - [X] Aerial Photographs
  - [ ] Other
- [ ] No Recorded Data Available

FIELD OBSERVATIONS		
Depth of Surface Water	N/A	(in)
Depth to Free Water in Pit	N/A	(in)
Depth to Saturated Soil	N/A	(in)

WETLAND HYDROLOGY INDICATORS

Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [X] Water Marks – IRRIGATION DITCH FROM AG. LAND.
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more Required):
- [ ] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [ ] Local Soil Survey Data
- [X] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

)ILS

lap Unit Name (Series and Phase): HOLTVILLE SILTY CLAY, WET | Drainage Class:

axonomy (Subgroup) | Field Observations Confirm Mapped Type? (YES) NO

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16	A	7.5 YR 4/3	N/A	N/A	SILTY CLAY

HYDRIC SOIL INDICATORS:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

:marks:
AREA APPEARS TO BE A EARTHEN IRRIGATION CHANNEL BETWEEN AG. FIELD AND DIRT ROAD. FRESH WATER MARSH W/TYPHA ON OTHER SIDE OF ROAD.

TLAND DETERMINATION

drophytic Vegetation Present?	(YES) NO	Is this Sampling Point Within a Wetland? YES (NO)
etland Hydrology Present?	YES (NO)	
dric Soils Present?	YES (NO)	

marks

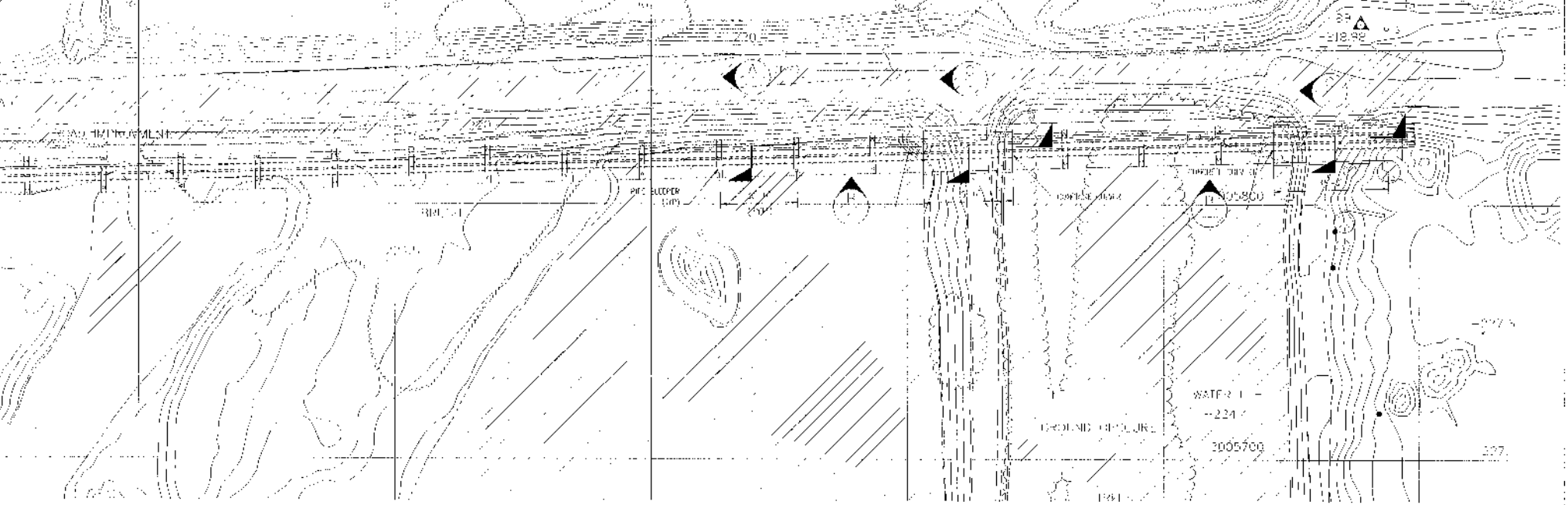
Photo 1: View looking east from the middle of levee on McKendry Road. The proposed pipeline and road widening will occur south of this road past the far right edge of this photograph. Open water, tamarisk scrub, and brackish water marsh are visible along the northern edge of the road.

Photo 2: View looking east from the levee on McKendry Road.

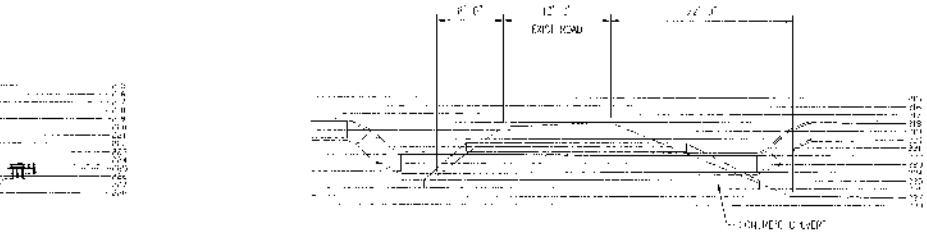
Photo 3: View looking east from the levee on McKendry Road. This side of the road will be widened to facilitate the proposed aboveground pipeline route. Open water, brackish water marsh, and desert saltbush scrub are visible in this photograph.

Photo 4: View looking east from levee on McKendry Road. Brackish water marsh associated with an earthen bottom irrigation ditch is visible to the south. Clapper rail was seen crossing this levee from an area at the north side of the levee to the brackish water marsh shown in this photograph.

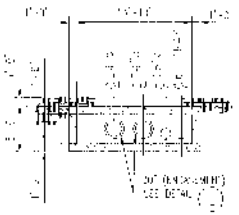
Photo 5: View looking northeast from the levee on McKendry Road. Shovel indicates where Test Pit 1 was dug.



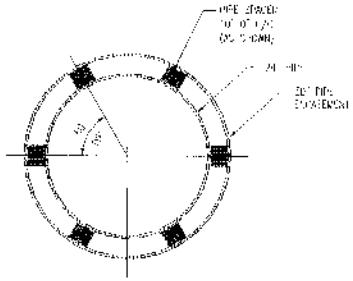
PLAN



SECTION B



SECTION C



TYPICAL PIPE ENCASEMENT

DETAIL 1

GRAPHIC SCALE

1"=25'

△	ISSUED FOR REVIEW COMMENT	JCZ 7/20/07
NO.	DESCRIPTION	PREP CHK DATE

Bibb and associates

EPC CONTRACTOR

CAL ENERGY OPERATING CORPORATION

SALTON SEA UNIT 6

OBSIDIAN BUTTE ROAD IMPROVMENT AND PIPEWAY DETAILS

DESIGNED	JCZ	DATE 7/20/07	SHEET — OF —
DRAWN	JCZ	4/12/2007	DRAWING NUMBER
CHECKED			22 024 CV SK03
APPROVED			

REPORT

BIOLOGICAL ASSESSMENT FOR THE SALTON SEA UNIT 6 GEOTHERMAL POWER PLANT PROJECT

PREPARED FOR:

CE OBSIDIAN ENERGY LLC

URS PROJECT NO. 58-00161046.03 00800

JULY 11, 2002

REPORT

BIOLOGICAL ASSESSMENT FOR THE SALTON SEA UNIT 6 PROJECT

Prepared for:

CE Obsidian Energy LLC
7030 Gentry Road
Calipatria, CA 92233

URS Project No. 58-00161046.03 00800

July 11, 2002

URS

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Appendices

This Biological Assessment has been prepared in support of the proposed Salton Sea Unit 6 Project (SSU6) to be sited within the Imperial Valley approximately 1,000 feet southeast of the Salton Sea. The project as proposed includes road widening and construction of a pipeline that may affect waters of the United States subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps) pursuant to Section 404 of the Clean Water Act.

This Biological Assessment evaluates potential effects on the brown pelican (Federally Endangered/State Endangered), Yuma clapper rail (Federally Endangered/State Threatened), mountain plover (Federally Proposed Threatened/State Species of Special Concern), Least Bell's vireo (Federally Endangered/State Endangered), southwestern willow flycatcher (Federally Endangered/State Endangered) and desert pupfish (Federally Endangered/State Endangered) from the proposed SSU6 Project. This document has been prepared to meet the requirements for consultation between the Corps and the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the Federal Endangered Species Act, and the requirements of Sections 2080, 2080.1 and 2081 of the California Endangered Species Act.

The proposed project would be permitted under the jurisdiction of the California Energy Commission (CEC) through an Application for Certification (AFC). The CEC permit process is a "one stop shop." It provides for granting of permits and approvals for thermal power plants greater than 50 megawatts (MW) that would normally be granted through individual State and local agencies. The CEC permitting process, however, does require coordination with these State and local agencies to ensure that appropriate issues are addressed.

Section 2 describes the project and its components. Section 3 provides a general description of the project study area and the biological resources therein. Sections 4 to 14 evaluate potential project impacts related to the above-mentioned species. Section 15 provides a summary of cumulative effects on the listed species. Section 16 provides recommendations to avoid, minimize, and/or compensate for project impacts and to conserve each species. Section 17 lists preparers and reviewers of this document. Section 18 lists references used in preparing this document.

This document primarily relies on material presented in the AFC, which includes detailed descriptions of affected resources and potential effects of the project. Both the CEC and the Corps require preparation of a Biological Resources Mitigation and Implementation Monitoring Plan (BRMIMP) report, which is in process. The BRMIMP is a detailed guidance document for all biological mitigation. This Biological Assessment describes mitigation measures that are also described in the AFC, and that also will be included in the BRMIMP.

2.1 OVERVIEW

The SSU6 project is a proposed geothermal power plant. It consists of the SSU6 geothermal plant site that would incorporate a turbine generator area, resource production facility, separation/brine clarification area, electrical/control building area, cooling towers, filter press and storage area, electrical switchyard, brine pond, water pond and power generation facility rain water run off basin, emission control equipment, parking area, and a construction lay-down area. In addition, 10 production wells on five well pads, seven injection wells on three well pads, and two small plant injection wells on existing well pads would be located on or near the plant site, with pipelines connecting them to the plant. A 500-foot long water supply pipeline would connect the plant with an existing water supply canal, Vail 4a, pass under Boyle Road and run along the southern boundary of the plant site. A 16-mile transmission line built at 230 kV, but operated at 161 kV (L-Line Interconnection), would be constructed to connect to the existing L Line southwest of the plant site. Additionally, a 15-mile transmission line (IID Midway Interconnection) built at 230 kV, but operated at 161 kV, would be constructed to connect the plant site to the existing Imperial Irrigation District (IID) Midway Substation, located east of the plant site. The study area includes each of these facilities plus the area within one mile of the plant site and the areas within 1,000 feet of the linear facilities. Evaluation of these study areas included the use of existing databases and direct field surveys to ensure an accurate assessment of potential impacts on biological resources as discussed below.

This area has been extensively reviewed from an environmental perspective for exploration and production projects under the Master Environmental Impact Report for the Salton Sea Anomaly (Westec Services, 1981). In the past, several wells were drilled and tested in the immediate area and have been either abandoned under California Division of Oil, Gas, and Geothermal Resources (DOGGR) guidelines and procedures, or function as monitoring wells. The proposed power plant site and associated well pad sites and transmission lines have been located and will be operated to minimize environmental impacts to the surrounding area.

2.2 PLANT SITE

The SSU6 power plant site is within the Imperial Valley, approximately 1,000 feet southeast of the Salton Sea (Figure 1). The Imperial Valley is located in the southwest part of the Colorado Desert that merges northwestward into the Coachella Valley near the northern shore of the Salton Sea. The SSU6 Project site is located in a region of the Imperial Valley that is characterized by wildlife habitat, agriculture, and geothermal power production. The surrounding area is dominated by agriculture.

The town of Niland is located approximately 7.5 miles to the northeast and the town of Calipatria is approximately 6.1 miles to the southeast of the plant site. The Sonny Bono Salton Sea National Wildlife Refuge (Refuge) Headquarters is located approximately 2,500 feet from the plant site. The Alamo River is located approximately three miles east of the plant site. Nine geothermal power plants are located within three miles of the plant site. Geothermal power plants commonly known as Salton Sea Units 1, 2, 3, 4 and 5 (Region 1) lie to the southwest, while geothermal power plants commonly known as Vulcan and Hoch (Region 2) lie to the southeast. Geothermal power plants commonly known as J.J. Elmore and Leathers are located to

the northeast. Vehicle access is either from State Highway 86 and Bannister Rd., or Sinclair Rd (from Highway 111.) Elevation is approximately 228 feet below sea level.

The plant would utilize 80 acres of a 160-acre parcel and will be located along the northern half of the block bounded by McKendry Road to the north, Severe Road to the west, Peterson Road to the south, and Boyle Road to the east. The grading footprint of the facility will be approximately 1,320 feet by 2,640 feet. Agriculture, agricultural ditches supporting patches of disturbed desert sink scrub, and gravel roads surround this location. Approximately 1,000 feet to the west is an open water/riparian scrub area that connects to the Salton Sea by a series of channels. Two intersecting, 20-foot-high gravel roads (berms) and Drainage Vail No. 5 separate this inundated area from the proposed plant site.

2.3 TRANSMISSION LINES

L-Line Interconnection

The proposed interconnection of the facility to IID's existing transmission system is via a new substation south of McKendry Road and east of Severe Road. A 16-mile, double-circuit transmission line constructed at 230 kV, but operated at 161 kV, would be built to the south to connect the new substation to the existing El Centro and Avenue 58 substations via the existing L-Line. This proposed L-Line Interconnection route would connect to the L Line southwest of State Highway 86 and Bannister Road, and would cross U.S. Bureau of Land Management (BLM) land for approximately 2.8 miles (Figure 2).

IID Midway Interconnection

A 15-mile, single-circuit transmission line constructed at 230 kV, but operated at 161 kV, also would be constructed from the new substation east to the existing IID Midway 230 kV substation. The 230 kV Midway substation would have a 161 kV line termination, a 161 kV breaker and a 161/230 kV transformer installed for the connection of the 161 kV line (Figure 2).

Alternate L-Line Interconnection

The Alternate L Line Interconnection would travel south from the plant site for nearly 7.5 miles, primarily along Lack Road to Bannister Road. Upon reaching Bannister Road, the route would travel west along Bannister Road to State Highway 86. From State Highway 86 this alternate route would parallel State Highway 86 on the east side of the highway until both intersect with the existing L-Line (Figure 2).

2.4 WELL PADS

Production Wells

Ten production wells are proposed on five new well pads, with two wells on each pad (Figure 3). The proposed location of Production Well Pad OB1 is in an agriculture field in the northeastern part of the northwest quarter of Section 33, with a grading footprint of approximately 300 feet by

700 feet. This location is adjacent to a freshwater marsh that supports Yuma clapper rail. This freshwater marsh was created by the Refuge and is considered a jurisdictional wetland by the Corps and the California Department of Fish and Game (CDFG). An access road that is approximately four feet higher than the adjacent agricultural field is at the south end of this marsh and is located between the marsh and the proposed location of the well pad.

The proposed location of Production Well Pad OB2 and associated 560-foot by 560-foot grading footprint is immediately north of McKendry Road, southwest of Production Well Pad OB1 (Figure 3). The proposed well pad location is occasionally used as an overflow parking lot during Refuge-sponsored events, and supports disturbed habitat with some desert sink scrub located on the west side of the site. A 20-foot levee separates this proposed site from a freshwater marsh.

The proposed location of Production Well Pad OB3 and associated 300-foot by 700-foot grading footprint is on the south side of Obsidian Butte in the eastern half of Section 32 (Figure 3). The IID actively mines this area for rocks used as riprap to line the roads adjacent to the Salton Sea. The well pad will be located on a level portion of Obsidian Butte in an area previously disturbed by the IID. Desert sink scrub consisting of iodine bush (*Allenrolfea occidentalis*) and desert holly (*Atriplex hymenelytra*) surrounds the study area outside the limits of grading of the proposed well pad site.

Construction of a pipeline between Production Well Pad OB3 and the power plant site would affect wetlands over which the Corps has jurisdiction pursuant to Section 404 of the Clean Water Act. Placing Production Well Pad OB3 on Obsidian Butte requires widening the access road to Obsidian Butte in order to accommodate the transportation of drill rigs to the well pad, and construction of a pipeline connecting wells on OB3 to the plant.

The existing roadway between the west end of McKendry Road and Obsidian Butte is used to provide service to a gravel pit located on Obsidian Butte. The road width is approximately 10 feet, and varies along its length. In order to provide a route for the drilling rigs that would be required to construct the two production wells located on Obsidian Butte, the road would be widened by approximately 15 feet, providing a 25-foot wide road surface. The widening would occur along the south side of the existing road with standard civil construction equipment, including dump trucks, bulldozers, compacting machines and grading machines.

Installation of the pipeline would require installation of approximately 20 pipe supports along a 600-foot distance (one support every 30 feet) on the south side of the widened road. The pipe supports are anticipated to be 12 feet wide and constructed of steel. Each support would be elevated above grade, supported by two piles, each approximately 14 inches in diameter. One of each pair of piles would be driven along the road slope and the other driven directly in the water. Construction of the pipeline would require cranes, a pile driving machine, fork lifts, welding machines and small trucks.

The proposed location of Production Well Pad OB4 and associated 300-foot by 700-foot grading footprint (Figure 3) is in the southwest corner of the proposed power plant site. This location is surrounded by agriculture, agricultural ditches supporting patches of disturbed riparian scrub and paved and gravel roads.

The proposed location of Production Well Pad OB5 and associated 300-foot by 700- foot grading footprint (Figure 3) is in the southwestern corner of the same agriculture field as Well Pad OB4 and the plant site, immediately north of Peterson Road. This location is surrounded by agriculture, agricultural ditches supporting patches of disturbed riparian scrub, and paved and gravel roads.

Injection Wells

In addition to the production wells, seven new injection wells on three new well pads are proposed. Injection Well Pads OBI-1 and OBI-2 would consist of two wells, and Injection Well Pad OBI-3 will consist of three wells (Figure 3).

The proposed location of Injection Well Pad OBI-1 and associated 300-foot by 700-foot grading footprint is on the west side of Gentry Road and north side of Lindsey Road in the southeast quarter of Section 4 (Figure 3). The habitat at and around the site is agricultural.

The proposed location of Injection Well Pad OBI-2 and associated 300-foot by 700- foot grading footprint (Figure 3) is on the west side of Cox Road and south of Peterson Road. The habitat at the site is agricultural. This well pad is located south of the main injection areas of the Elmore, Vulcan, and Hoch geothermal power plants.

The proposed location of Injection Well Pad OBI-3 is on the west side of Cox Road and south side of Montgomery Road, directly south of Injection Well Pad OBI-2 in an agricultural field. The proposed grading footprint of this well pad is 300-feet by 700-feet (Figure 3).

2.5 PIPELINES

Production & Injection Pipelines

The 100-foot wide pipeline corridors (plus an additional 10% for expansion joints) between the well-pad sites and the power plant site will be built on and/or traverse primarily agricultural land, drainage channels and paved or gravel roads (Figure 4). The pipeline corridor for Production Well Pad OB3 on Obsidian Butte would cross a brackish water marsh and would impact disturbed tamarisk and open water that is considered waters of the United States. The other agricultural drainage channels that will be spanned by the pipelines associated with the injection wells are vegetated with cattails (*Typha* spp.) and common reed (*Phragmites australis*) but are not considered waters of the United States because these agricultural drainages are a part of the IID water conveyance system built within a upland location, and are artificially derived and maintained by IID for agricultural production. The drainage function at these locations will not be affected by the pipeline crossings.

Construction of a pipeline between Production Well Pad OB3 and the power plant site would affect wetlands over which the Corps has jurisdiction pursuant to Section 404 of the Clean Water Act. Placing Production Well Pad OB3 on Obsidian Butte would require widening of the access road to Obsidian Butte in order to accommodate the transportation of drill rigs to the well pad, and construction of a pipeline connecting wells on OB3 to the plant. The pipeline supports and footings would be placed on the south side of the widened road (Figures 3 and 4). Minor impacts to the marsh are expected to result from the creation of a series of piers that will support

the pipeline crossing of the marsh and the widening of the existing dirt road. (See discussion in section 2.4 above.)

Water Supply Pipeline

A new water supply pipeline line will be built perpendicular to Boyle Road and would connect the plant site with the existing Vail 4A lateral (gates 459 and 460), located on the east side of Boyle Road (Figure 3). Disturbed/developed areas are present along the approximately 500-foot long section of pipeline starting at Boyle Road at the middle of the eastern boundary of the 160-acre parcel.

This section describes the environmental baseline against which the overall effects of the action (i.e., the project) are evaluated. Specific, more detailed aspects of the environmental baseline that apply to each of the listed species evaluated in this Biological Assessment are further developed for each respective species in Sections 4 through 14.

The study area includes each of the project facilities, as described in Section 2.1, plus the area within one mile of the plant site and the areas within 1,000 feet of the linear facilities.

Most of the existing land use within the SSU6 Project study area is active agriculture, with scattered disturbed areas, two fresh water marshes dominated by cattails (*Typha* sp.) in the area nearest the Refuge and Obsidian Butte, riparian habitat dominated by tamarisk that is restricted to the New River crossing on Lack Road, chenopod scrub, and desert scrub. The cattail marshes in the area nearest the Refuge and Obsidian Butte and the Salton Sea are considered waters of the United States.

3.1 PLANT COMMUNITIES

There are four native vegetation communities and three nonnative communities within the project area. In addition, the study area includes developed lands that do not support habitat for native plant or animal species. Native vegetation communities include creosote bush scrub, desert sink scrub, freshwater marsh, and disturbed riparian scrub. The classification of vegetation used in this study is based on the Holland system (Holland, 1986).

The majority of the plant compositions in the study area are not climax plant communities; therefore, many of the names for the mapped vegetation units are not consistent in species composition with the published descriptions. Most of the plant communities encountered by the project had vegetation cover dominated by senescent or active exotic grasses and weeds. This vegetation element is omnipresent in the project area growing under, co-dominant with, or replacing the native cover species.

Where the Holland classification was ambiguous, the most prominent or regularly distributed native species were used to classify the mapped vegetation into the best-fitting Holland type. This method was chosen to recognize plant compositions with regularly occurring and recovering native cover species.

3.1.1 General Habitat Descriptions

Creosote Bush Scrub communities typically consist of widely spaced individuals of creosote bush (*Larrea tridentata*), brittlebush (*Ambrosia dumosa*), saltbushes (*Atriplex* spp.) and associated cacti (*Opuntia* spp.) with a sparse annual herbaceous layer. The creosote bush scrub within the project area consists of a very low cover of shrubs and herbaceous plants compared to many creosote bush scrub areas throughout the Mojave and Sonoran Deserts. Evidence of disturbance is obvious in some areas and the soil salinity is likely very high from the heavy salt loads that are carried and deposited by the Colorado River. These factors probably contribute to the low plant cover and diversity.

Desert Sink Scrub communities typically consist of widely spaced plants on poorly drained, high alkalinity soils. The desert sink scrub in the study area consists of iodine bush (*Allenrolfea*

virginica), sea-blite (*Suaeda moquinii*), and desert holly (*Atriplex hymenelytra*). This habitat is present near the limits of grading of proposed Production Well Pads OB2 and OB3 and within the alignment of the pipeline between Production Well Pad OB1 and the plant site.

Freshwater Marsh communities are typically dominated by cattails (*Typha* spp.) and/or other emergent vegetation (*Scirpus* spp., *Carex* spp.). The two freshwater marshes within the project area are dominated by cattails (*Typha latifolia*) and common reed (*Phragmites australis*).

Disturbed Riparian Scrub communities vary from a dense, broad-leafed, winter-deciduous association dominated by several species such as willow *(Salix* spp.*)* and mulefat (*Baccharis salicifolia*) to a monotypic scrub dominated by salt cedar (also known as tamarisk: *Tamarix* spp.). The disturbed riparian scrub in the project vicinity occurs in patches along many of the agricultural drainages that convey water from the Alamo and New Rivers along the road network to the fields. The composition and density of the disturbed riparian scrub differs slightly in the ditches, but typically consists of tamarisk, arrowweed (*Pluchea sericea*), common reed (*Phragmites australis*), and saltgrass (*Distichlis spicata*). The project area also supports small patches of monotypic scrub communities of tamarisk, arrowweed, and common reed.

Agricultural areas dominate the study area. The Imperial Valley is one of the most productive agricultural regions in the world. The active agricultural lands within the study area support row crops such as alfalfa, lettuce, carrots, sugar beets, broccoli, and numerous others. Several fields within the study area support cattle, have been recently disked for immediate planting, or are fallow. The fallow lands will most likely be cultivated again and will not succeed to a disturbed community such as non-native grassland.

Disturbed Habitat is any land on which the native vegetation has been significantly altered by agriculture, construction, or other land-clearing activities, and the species composition and site conditions are not characteristic of the disturbed phase of one of the plant associations within the study region. Such habitat is dominated by nonnative annual and perennial broad-leaved species. The disturbed habitat within the study area can be found along roads and areas that have been cleared, but are not under cultivation.

Developed land supports no native vegetation and often contains man-made structures such as buildings or roads. These areas include industrial and commercial buildings as well as residences. Recently cleared and graded areas that are associated with development are also included in this category.

3.1.2 Plant Site

The 80-acre area required to accommodate the plant facilities is located along the northern portion of the block bounded by McKendry Road to the north, Severe Road to the west, Peterson Road to the south, and Boyle Road to the east. The grading footprint for the plant facilities would be approximately 1,320 feet by 2,640 feet. Agriculture, agricultural ditches supporting patches of disturbed riparian scrub, and gravel roads surround this location, and approximately 1,000 feet to the west is an open water/riparian scrub area with freshwater marsh that connects to the Salton Sea by a series of channels. Two intersecting, 20-foot-high gravel roads (berms) separate this area from the proposed plant site. There were no sensitive plant species identified

on or near the site. The on-going cultivation of the agricultural fields and use of the access roads precludes the development of habitat suitable to support sensitive plant species.

3.1.3 Transmission Lines

L-Line Interconnection

The habitat along Lack and Bannister Roads consists of agriculture and associated canals, developed-residential, and a strip of riparian habitat dominated by tamarisk (*Tamarix* sp.) where the New River crosses Lack Road. Agricultural drainage channels follow Lack and Bannister Roads and consist of disturbed, ruderal vegetation, such as mustard (*Brassica tournefortii*), sow thistle (*Sonchus oleraceus*), alkali mallow (*Malvella leprosa*), and alkali weed (*Cressa truxillensis*). Typical vegetation communities are present in the channels, some of which are concrete-lined. The habitat west of the junction of Bannister Road and State Highway 86 (on BLM Land) is creosote bush scrub consisting of creosote bush, brittlebush, saltbush, and ephedra (*Ephedra viridis*).

IID Midway Interconnection

An approximately 15-mile, single-circuit transmission line, built at 230 kV but operated at 161 kV, also would be constructed from the new substation east to the existing Midway 230 kV substation. The 230 kV Midway substation would have a 161 kV line termination, a 161 kV breaker and a 161/230 kV transformer installed for the connection of the 161 kV line (Figure 2).

Alternate L-Line Interconnection

The Alternate L-Line Interconnection would travel south from the plant site for nearly 7.5 miles primarily along Lack Road to Bannister Road, as does the proposed L-Line Interconnection. Upon reaching Bannister Road, the route would travel west along Bannister Road to State Highway 86. From State Highway 86, this alternate route would parallel State Highway 86 until both intersect with the existing L-Line (Figure 2).

3.1.4 Well Pads

Production Wells

Ten production wells are proposed on five new well pads, with two wells on each pad. The proposed location of Production Well Pad OB1 is in an agricultural field in the northeastern part of the northwest quarter of Section 33, with a grading footprint of 300-feet by 700-feet. This location is adjacent to a freshwater marsh that supports Yuma clapper rail. Adjacent freshwater marsh was created by the Refuge and is considered a jurisdictional wetland by the Corps and CDFG. An access road that is approximately four feet higher than the adjacent agricultural field is at the south end of this marsh and is located between the marsh and the proposed location of the well pad.

The proposed location of Production Well Pad OB2 and associated 560-foot by 560-foot grading footprint is immediately north of McKendry Road, southwest of Production Well Pad OB1. The

proposed well pad location is occasionally used as an overflow parking lot during Refuge-sponsored events, and supports disturbed habitat with some desert sink scrub located on the west side of the site. A 20-foot levee separates this proposed site from a freshwater marsh.

The proposed location of Production Well Pad OB3 and associated 300-foot by 700-foot grading footprint is on the south side of Obsidian Butte in the eastern half of Section 32. The IID actively mines this area for rocks used as riprap to line the roads adjacent to the Salton Sea. The well pad will be located on a level portion of Obsidian Butte in the area previously disturbed by the IID. Desert sink scrub consisting of iodine bush (*Allenrolfea occidentalis*) and desert holly (*Atriplex hymenelytra*) surrounds the study area outside the limits of grading of the proposed well-pad site.

The proposed location of Production Well Pad OB4 and associated 300-foot by 700-foot grading footprint is in the southwest corner of the proposed power plant site. This location is surrounded by agriculture, agricultural ditches supporting patches of disturbed riparian scrub and paved and gravel roads.

The proposed location of Production Well Pad OB5 and associated 300-foot by 700-foot grading footprint is in the southeastern corner of the same agriculture field as Production Well Pad OB4 and the plant site, immediately north of Peterson Road. This location is surrounded by agricultural, agricultural ditches supporting patches of disturbed riparian scrub, and paved and gravel roads.

Injection Wells

In addition to the production wells, seven new injection wells on three new well pads are proposed. Injection Well Pads OBI-1 and OBI-2 each consists of two wells, and Injection Well Pad OBI-3 consists of three wells.

The proposed location of Injection Well Pad OBI-1 and associated 300-foot by 700-foot grading footprint is on the west side of Gentry Road and north side of Lindsey Road in the southeast quarter of Section 4. The habitat at and around the site is agricultural.

The proposed location of Injection Well Pad OBI-2 and associated 300-foot by 700-foot grading footprint is on the west side of Cox Road and south of Peterson Road. The habitat at the site is agricultural. This well pad is located south of the main injection areas of the Elmore, Vulcan, and Hoch geothermal power plants.

The proposed location of Injection Well Pad OBI-3 is on the west side of Cox Road and south side of Montgomery Road, directly south of Well Pad OBI-2 in an agricultural field. The proposed grading footprint of this well pad is 300 feet by 700 feet.

3.1.5 Pipelines

Production & Injection Pipelines

The 320-foot wide pipeline corridors between the well-pad sites and the power-plant site traverse primarily agricultural land, drainage channels and paved or gravel roads. The pipeline corridor for Production Well Pad OB3 on Obsidian Butte would cross a brackish water marsh and would

impact disturbed tamarisk scrub and open water that is considered waters of the United States. Minor impacts to the inundated area are expected to result from the creation of a series of pier footings placed at 20-foot intervals that will support the pipeline crossing adjacent to the access road to Obsidian Butte and the widening of the existing road to a width of 25 feet. The other agricultural drainage channels that will be spanned by the pipelines associated with the injection wells are sparsely vegetated with cattails (*Typha* spp.) and common reed (*Phragmites australis*). The agricultural drainages are not considered waters of the United States because these agricultural drainages are a part of the IID water conveyance system built within an upland location, and are artificially derived and maintained by IID for agricultural production. The drainage function at these locations will not be affected by the pipeline crossings.

Water Supply Pipeline

A new water supply pipeline line will be built perpendicular to Boyle Road, and would connect the plant site with the existing Vail 4A lateral (gates 459 and 460), located on the east side of Boyle Road. Developed areas are present along the approximately 500-foot long section of pipeline.

3.2 WILDLIFE

The major habitat types in the study area are associated with the Imperial Valley and the Salton Sea. The Imperial Valley includes natural habitat areas typical of the low Colorado Desert including creosote bush scrub and desert sink scrub. These habitats extend across portions of the Imperial Valley, which also has substantial agricultural development. At the nadir of the Imperial Valley lies the Salton Sea, an artificially created body of Colorado River-derived water fed by irrigation canals and artificial streams such as the New and Alamo Rivers. The elevation at the Salton Sea surface is 226 feet below sea level. Occupying the lakebed of ancient Lake Cahuilla, the highly-alkaline Salton Sea was created in 1905 when a diversion structure on the Colorado River failed, and the river flowed into the Salton Sink for 16 months (USFWS, 1997). The Salton Sea now functions as a migratory stopover for an abundance of bird life. In recognition of this, the Refuge was established in 1930, and covers 37,600 acres of mostly inundated area.

Burrowing owls are common throughout the study area in drainage ditches and on posts along the roadsides, mostly outside the immediate well-pad locations. Yuma clapper rails were detected in the cattail marshes located within the study area but outside the area of direct impact from the well pads or power plant facilities. A complete listing of sensitive species with the potential to occur in the study area can be found in Table 1.

3.2.1 Plant Site

The plant facilities will be located on 80 acres in the northern portion of the block bounded by McKendry Road to the north, Severe Road to the west, Peterson Road to the south, and Boyle Road to the east. The entire block (approximately 2,500 feet by 2,500 feet) was evaluated for potential impacts to sensitive species. The grading footprint of the facilities would be approximately 1,320 by 2,640 feet. Agriculture and gravel roads surround this location, and

approximately 1,000 feet to the west is a marsh/pond that connects to the Salton Sea by a series of channels. Two intersecting, 20-foot-high gravel roads (berms) separate this marsh from the proposed plant site facilities.

In 1991, 44 desert pupfish were recorded in a shoreline pool located near the northwest corner of the plant facilities site. This pool is fed by the agricultural Vail Drain and Lateral 5, a portion of which runs along the western boundary of the plant site. Subsequent pupfish surveys of this area (1998 to present) have been negative. One burrowing owl was detected on the east side of the quarter section along Boyle Road, and another was detected within the proposed power plant facilities site near McKendry Road.

3.2.2 Transmission Lines

L-Line Interconnection

The 2.8-mile corridor between State Highway 86 and the L-Line Interconnection currently is owned by the BLM and consists primarily of creosote bush scrub, with areas of disturbed habitat near the highway. A large wash flows along the majority of the route and appears to be used by carnivores, as manifested by the evidence of tracks, scat, and den sites. Signs of coyote (*Canis latrans*), bobcat (*Felis rufus*), and kit fox (*Vulpes macrotis*) were detected in association with this wash during a February 6, 2002, biological survey of this route.

The habitat along the proposed route is disturbed at various points. Evidence of off-highway vehicles is present throughout this route, especially near the highway and in the bottom of the larger washes in this area. Adjacent and to the south of the route is an active landfill that incorporates most of Section 16. A fence line encircling the landfill area prevents further disturbance beyond the landfill property. The transmission line route also would cross a large bank-reinforcing berm that presumably prevents a large wash from encroaching upon the landfill property. This berm is approximately a half-mile in length, approximately 30 feet wide, and appears to be maintained annually.

IID Midway Interconnection

The IID Midway Interconnection would follow a route that ends at the Midway substation approximately 15 miles east of the project site. Agricultural and developed habitat exist along the entire route, but provide marginal value to native wildlife because of the lack of native vegetation. However, burrowing owls were observed along the IID Midway Interconnection alignment (Figures 4 through 8). Burrowing owl occupy burrows along the various roadside ditches and canals that flow adjacent to the agricultural fields.

Alternate L-Line Interconnection

The Alternate L-Line Interconnection would travel south from the plant site for nearly 7.5 miles primarily along Lack Road to Bannister Road, as does the Proposed L Line Interconnection route. Upon reaching Bannister Road, the route would travel west along Bannister Road to State Highway 86. From State Highway 86, the route would parallel State Highway 86 until both intersect with the existing L line. The habitat along Lack and Bannister Roads consists of

agriculture and associated canals, developed-residential, and a strip of riparian habitat dominated by tamarisk (*Tamarix* sp.) where the New River crosses Lack Road. Burrowing owls occupy the southern two to three miles of the drainage channels along Lack Road and the drainage channels along Bannister Road near its intersection with Lack Road.

3.2.3 Well Pads

Production Wells

The proposed location of Production Well Pad OB1 and associated 300-foot by 700-foot grading footprint is adjacent to a freshwater marsh that supports Yuma clapper rail. This freshwater marsh was developed by the Refuge and is considered a jurisdictional wetland by the Corps and the CDFG. URS biologists detected three Yuma clapper rails in this marsh during surveys in the summer of 2001, and one Yuma clapper rail in an adjacent irrigation canal that is dominated by cattails in the spring of 2002.

The area Production Well Pad OB2 and associated 560-foot by 560-foot grading footprint would occupy is occasionally used as an overflow parking lot during Refuge-sponsored events. Two Yuma clapper rails were detected in the spring of 2001 in a disturbed wetland buffer area that exists between the 20-foot levee and the proposed Production Well Pad OB2 location. A burrowing owl was observed on several occasions in the southwest corner of this well pad site, however, no burrows were found within the proposed well pad site (Table 3).

The proposed location of Production Well Pad OB3 and associated 300-foot by 700-foot grading footprint is on the south side of Obsidian Butte in the eastern half of Section 32. Although gull-billed terns have historically nested on the north edge of Obsidian Butte, no confirmed nesting has been reported at this location for the last two years. The primary nesting site of gull-billed terns is located on Rock Hill, an island in the Salton Sea northeast of the proposed SSU6 Project study area (Molina 2000). Brown pelicans also have historically nested along the southern edge of Obsidian Butte. However, within recent years nesting has been unsuccessful (Bradshaw 2002). No burrowing owl or Yuma clapper rails were detected, and no suitable habitat for these species is present at this location on Obsidian Butte.

The proposed location of Production Well Pad OB4 and associated 300-foot by 700-foot grading footprint is in the southwest corner of the proposed power plant site. One burrowing owl was detected on the east side of the quarter section along Boyle Road. Clapper rail habitat is not present at this site.

The proposed location of Production Well Pad OB5 and associated 300-foot by 700-foot grading footprint is in the southeastern corner of the same agriculture field as Production Well Pad OB4 and the plant site immediately north of Peterson Road. This location is surrounded by agriculture and paved and gravel roads. Two burrowing owls were detected south of the well pad. Clapper rail habitat is not present at this site.

Injection Wells

The proposed location of Injection Well Pad OBI-1 and associated 300-foot by 700-foot grading footprint is on the west side of Gentry Road and north side of Lindsey Road in the southeast

quarter of Section 4. A burrowing owl pair was detected on the side of a drainage channel approximately 200 feet west of the proposed well pad site along Lindsey Road. Three additional burrowing owls were observed along the east side of this well pad in 2002. Clapper rail habitat is not present at this site.

The proposed location of Injection Well Pad OBI-2 and associated 300-foot by 700-foot grading footprint is on the west side of Cox Road and south of Peterson Road. Two burrowing owls were detected just north of this proposed well pad site in February 2002. Clapper rail habitat is not present at this site.

The proposed location of Injection Well Pad OBI-3 and associated 300-foot by 700-foot grading footprint is on the west side of Cox Road and south side of Montgomery Road, directly south of Injection Well Pad OBI-2 in an agriculture field (Table 3). A burrowing owl was detected on the east side of this well pad. Clapper rail habitat is not present at this site.

3.2.4 Pipelines

Production & Injection Pipelines

The 100-foot wide pipeline corridors (plus an additional 10% for expansion joints) between the well pad sites and the power plant site traverse primarily agricultural land, drainage channels and paved or gravel roads. The pipelines associated with Production Well Pads OB1 and OB2 would traverse IID-owned land for their entire length, approximately 4,600 feet and 700 feet, respectively. The pipeline corridor for Production Well OB3 on Obsidian Butte would cross a brackish marsh that is occupied by Yuma clapper rails. No desert pupfish were detected in this portion of the marsh during several recent surveys (Table 4). Minor impacts to the marsh and these species are expected to result from the installation of a series of piers that will support the pipeline crossing of the marsh. Some of the other agricultural drainage channels that will be crossed by the pipelines associated with the injection wells are vegetated with cattails and common reed and have the potential to support clapper rail. However, no clapper rails were detected in any of these channels during surveys. Burrowing owls were detected within 1,000 feet of these corridors.

Water Supply Pipelines

No sensitive species were detected along the approximately 500-foot long corridor for the water supply pipeline (Table 3).

3.2.5 Avian Flyover Analysis

Ogden and URS conducted an avian flyover analysis to document the numbers and types of waterfowl and shorebirds that may be impacted by new facilities and transmission lines in the project area, and the potential shorebird flyways between the Salton Sea and the project area. URS biologists collected data from several biological surveys of the SSU6 Project study area during the fall/winter and spring/summer seasons of 1999-2002 and incorporated data collected from surveys done by Ogden in 1989 and 1994 into the data set of waterfowl abundance and flyovers. Surveys consisted of shoreline and transmission-line flyover surveys, as well as avian abundance surveys in the project area.

In 1994 Ogden developed the survey protocol for the avian flyovers with the assistance of the USFWS, and with the approval of the California Energy Commission staff. Starting at sunrise, approximately five predetermined stations within the project area were visited each survey day. Flyover surveys at each station lasted 30 minutes, during which the species, direction, and approximate height of all shorebirds and waterfowl flying over a specific area were recorded. When a determination of species was not possible, birds were grouped into categories (e.g., terns, gulls, ducks, etc.). Flight elevation was estimated and grouped into three elevation categories: low (<75 feet), medium (75-150 feet), and high (>150 feet). These elevation categories are based on existing and proposed electrical transmission lines, and are determined to reflect potential hazards to waterfowl and shorebirds. Existing electrical transmission lines in the study area are 40 to 60 feet above the ground, and new electrical transmission lines proposed for the project are expected to be 100 to 125 feet above the ground.

Data collection was restricted to waterfowl and shorebirds that were observed moving from resting areas to inland foraging areas or from foraging areas to resting areas, potentially placing them at risk from new facilities and transmission lines placed in the study area. Birds observed foraging along the shore, making short flights between the sea and immediately adjacent foraging habitat, traveling along the shoreline, or circling over the sea were recorded but not included in the data analysis as flyovers.

Following a flyover survey at a given station, URS biologists assessed the abundance of waterfowl and shorebirds and any sensitive species in the study area. A predetermined survey route that included all proposed well pads, the power plant site, and the transmission line, each with a 1,000-foot buffer zone, was traveled by vehicle, with periodic stops to scan and count for birds. Only birds that were present at the beginning of the count were recorded. Habitat-type and agricultural or other human activities were recorded, as well as the presence or absence of water in foraging areas. Weather conditions and time spent surveying at each station were also recorded. Field observations were made with binoculars and spotting scopes when necessary. Results of this analysis are for the elevations that are relevant to the SSU6 Project (75-150 feet) and are displayed in Figure 9. All survey data is available in Appendix A.

4.1 REGIONAL DISTRIBUTION OF PEIRSON'S MILKVETCH AND LOCAL PLANS

4.1.1 Historic and Existing Known Distribution

Peirson's milkvetch (*Astragalus magdalenae* var. *peirsonii*) is a State-endangered and Federally threatened species that is rare but assumed stable in the southern deserts. It is a perennial herb in the pea family, reaching three feet in height. It occurs on desert dunes at elevations from 160-850 feet above sea level. The variety produces pink-purple flowers from December through April. The closest recorded occurrence of this species is in the vicinity of Kane Spring on the west side of the Salton Sea, approximately 13 miles west-southwest of the project area.

4.1.2 Regional and Local Plans

At this time, there is no approved habitat conservation plan for Imperial County. The Coachella Valley Natural Communities Conservation Planning (NCCP) program is in progress, but is not yet approved. The Refuge and the California Desert Conservation Area (CDCA) are located within Imperial County, but will not be adversely impacted by project activities.

4.2 OCCURRENCE AND STATUS OF THE SPECIES ON SITE

The Peirson's milkvetch has not been observed within the project area. There is little to no potential for this species to occur within the study area due to lack of suitable habitat or soils.

4.3 EFFECTS OF THE PROJECT ON PEIRSON'S MILKVETCH

The proposed project will not adversely affect the Peirson's milkvetch. The project area does not support the preferred habitat, nor have any individuals been observed. Therefore, no adverse effects on the species are expected to result from the construction or operation of the proposed project.

5.1 REGIONAL DISTRIBUTION OF DESERT PUPFISH AND LOCAL PLANS

5.1.1 Historic and Existing Known Distribution

The desert pupfish (*Cyprinodon macularius*) is a Federal and State-endangered small silvery-colored fish. It was historically distributed throughout the lower Colorado River, portions of Arizona, southeastern California, and northern Mexico. It prefers backwater areas, springs, streams, and pools along the shoreline of the Salton Sea. In California, the desert pupfish is restricted to shoreline pools of the Salton Sea, agricultural drains in the Imperial and Coachella valleys, lower Salt Creek in Riverside County, lower San Felipe Creek in Imperial County, and eight artificial Refuge ponds (Bolster 1990, CDFG 1991). This species is threatened by habitat alteration, reduced water quality, and the introduction of exotic species.

5.1.2 Regional and Local Plans

At this time, there is no approved habitat conservation plan for Imperial County. The Coachella Valley NCCP is in progress, but is not yet approved. The Refuge and the CDCA are located within Imperial County, but will not be adversely impacted by project activities.

5.2 OCCURRENCE AND STATUS OF THE SPECIES ON SITE

The desert pupfish has not been observed within the project area, although there are several records of this species in slow-flowing agricultural drainages throughout the Salton Sea area. This species potentially exists within these drainages in the Obsidian Butte study area; however, the drainage that would be affected by project activities showed no sign of desert pupfish occurrence in the 1998, 2000 or 2002 surveys, although it could be appropriate habitat. Therefore, desert pupfish are not expected to be impacted by the proposed project. A survey performed by Dr. Allan A. Schoenherr on February 9, 2002, detected no desert pupfish within plots along the proposed pipeline route from the plant site to Production Well Pad OB3. In a 1994 survey, a total of 53 pupfish were captured south of McKendry Road (Table 4). However, desert pupfish were not detected in 2002 surveys of this area by Dr. Schoenherr (Table 4).

5.3 EFFECTS OF THE PROJECT ON DESERT PUPFISH

The proposed project will not adversely affect the desert pupfish. Although the species has the potential to occur in drainages throughout the site, only one drainage will be impacted by project activities and no desert pupfish were observed there in the 1998, 2000, or 2002 surveys. Therefore, no adverse effects on desert pupfish are expected to result from the construction or operation of the proposed project.

6.1 REGIONAL DISTRIBUTION OF LEAST BELL'S VIREO AND LOCAL PLANS

6.1.1 Historic and Existing Known Distribution

Historically this Federal and State-endangered subspecies (*Vireo bellii pusillus*) was a common summer visitor to riparian habitat throughout much of California. Currently, least Bell's vireo is found only in riparian woodlands in southern California, with the majority of breeding pairs in San Diego, Santa Barbara, and Riverside counties. The vireo's decline is due to loss and degradation of riparian habitat combined with nest parasitism by the brown-headed cowbird (*Molothrus ater*). Least Bell's vireo is restricted to riparian woodland and is most frequent in areas that combine an understory of dense young willows or mulefat with a canopy of tall willows.

6.1.2 Regional and Local Plans

At this time, there is no approved habitat conservation plan for Imperial County. The Coachella Valley NCCP is in progress, but is not yet approved. The Refuge and the CDCA are located within Imperial County, but will not be adversely impacted by project activities.

6.2 OCCURRENCE AND STATUS OF THE SPECIES ON SITE

Suitable riparian habitat for this species is not present in the project area. The proposed L-Line Interconnection would cross over a section of tamarisk (*Tamarix* spp.) dominated riparian habitat associated with the New River and Alamo River, however, no least Bell's vireo have been recorded historically in this area or during recent field surveys.

6.3 EFFECTS OF THE PROJECT ON LEAST BELL'S VIREO

The proposed project will not adversely affect the least Bell's vireo. The project site does not support the preferred habitat, nor have any individuals been observed. Therefore, no adverse effects on least Bell's vireo are expected to result from the construction or operation of the proposed project.

7.1 REGIONAL DISTRIBUTION OF CALIFORNIA BROWN PELICAN AND LOCAL PLANS

7.1.1 Historic and Existing Known Distribution

The California brown pelican (*Pelecanus occidentalis*) is a Federal and State-endangered species. It nests on the Gulf and Pacific coasts of Baja California (Wilbur 1987), moving northward after the breeding season. Coastal populations remain throughout the winter and early spring, but birds on the Salton Sea and lower Colorado River usually depart by late fall (McCaskie 1979). Arrivals at the Salton Sea typically begin in June, with peak numbers in July and August (McCaskie 1979, 1980, Garrett and Dunn 1981). The species has regularly occurred in the project area within the last 30 years and peak numbers have increased by a factor of 10 to 20 in the last 10 years (McCaskie 1989, 1990).

Brown pelicans began nesting at the Salton Sea in 1996 (Shuford et al. 1999). The number of breeding birds has been low, with six pairs nesting in 1996 and several pairs attempting to nest in most years since then (Shuford et al. 1999). Brown pelicans did not nest at the Salton Sea in 1999 (Shuford et al. 2000). Nesting birds have used tamarisks at the Alamo River delta and also attempted to nest at Obsidian Butte (S. Johnson, pers. comm.). Recent nesting attempts at Obsidian Butte, however, have been unsuccessful (Bradshaw 2002).

7.1.2 Regional and Local Plans

At this time, there is no approved habitat conservation plan for Imperial County. The Coachella Valley NCCP is in progress, but is not yet approved. The Refuge and the CDCA are located within Imperial County, but will not be adversely impacted by project activities.

7.2 OCCURRENCE AND STATUS OF THE SPECIES ON SITE

A total of 20 individuals have been observed on site within the alignment of the proposed L-line transmission route. Twelve pelicans were recorded at flyover site number OBFLY06, and eight pelicans were recorded at flyover site number OBFLY03 (Figures 4 through 8). A complete version of the survey data is located in Appendix A.

7.3 EFFECTS OF THE PROJECT ON BROWN PELICAN

Although the brown pelican has been recorded in the project vicinity, the implementation of the proposed mitigation measures is expected to keep impacts to a minimum.

During plant commissioning, a method used to clean piping called "steam blows" creates substantial noise. A steam blow results when high-pressure steam is allowed to escape into the atmosphere through the steam piping to clean the piping. The steam blow is expected to last for approximately 72 hours. The steam blow is necessary after erection and assembly of the systems because the piping and tubing that comprise the steam path accumulate dirt, rust, scale, and construction debris. It prevents debris from entering the steam turbine. Unsilenced steam blows would produce a sound level of approximately 102 dBA at the closest point to the brown pelican habitat (approximately 650 feet from the source). The project proposes to include a silencer,

designed by Fluid Kinetics Corporation, that would provide 44 dBA of attenuation. The resultant sound level in the habitat would be approximately 58 dBA. Therefore, no significant impacts to brown pelican would occur from the steam blows.

Sound levels as a result of plant operation within the brown pelican habitat located to the northwest and west would be less than 60 dBA L_{eq}. Therefore, no significant noise impacts to the brown pelican would occur as a result of plant operation.

Bird flight diverters may be installed in strategic locations along the transmission lines to make the lines more visible to the birds. This measure is expected to reduce the number of bird casualties associated with the new transmission lines. Therefore, no significant adverse effects on brown pelican are expected to result from the construction or operation of the proposed project.

8.1 REGIONAL DISTRIBUTION OF YUMA CLAPPER RAIL AND LOCAL PLANS

8.1.1 Historic and Existing Known Distribution

The Yuma clapper rail (*Rallus longirostris yumanensis*) is a Federally endangered and State threatened bird. It is common in summer, in localized freshwater wetlands in the Salton Basin and the lower Colorado River (Garrett and Dunn 1981, Wilbur 1987). It is found at both ends of the Salton Sea and is known to be a breeding species in marshes on the lower Alamo and New Rivers. Its winter occurrence is uncertain, probably owing to its low detectability when not courtship-calling (Garrett and Dunn 1981). These secretive birds prefer extensive and undisturbed marshes for foraging and nesting, but they are adaptable to a range of ephemeral and disturbed wetland conditions in the interior (Garrett and Dunn 1989).

8.1.2 Regional and Local Plans

At this time, there is no approved habitat conservation plan for Imperial County. The Coachella Valley NCCP is in progress, but is not yet approved. The Refuge and the CDCA are located within Imperial County, but will not be adversely impacted by project activities.

8.2 OCCURRENCE AND STATUS OF THE SPECIES ON SITE

In a survey conducted by Ogden in 1994, a total of eight clapper rails were detected on or adjacent to the study area. A single bird responded to taped calls at a freshwater marsh area at the southwest corner of Sinclair Road and Lateral Drain 4-A, near a potential well pad site. Seven clapper rails responded to calls from a freshwater marsh pond adjacent to the northern boundary of the project study area.

Two additional clapper rails were recorded at McKendry Road to Obsidian Butte adjacent to the plant site, during the 2001 surveys conducted by URS biologists. Another Yuma clapper rail was detected within a cattail-lined agricultural drainage that runs along the east side of Production Well Pad OB1 in the Spring of 2002. A complete version of the survey data is located in Appendix A.

8.3 EFFECTS OF THE PROJECT ON YUMA CLAPPER RAIL

Although the Yuma clapper rail has been recorded in the project area, the enhancement of wetland habitat within the vicinity of the project area will serve as appropriate mitigation for project impacts. The pipeline crossing to Production Well Pad OB3 will directly impact 0.05 acre of habitat suitable for clapper rail. Noise from the construction of the power plant also may indirectly affect clapper rail use of habitat associated with Vail Drain 5 along Severe Road.

Sound levels as a result of plant construction within the Yuma clapper rail habitat located to the northwest and west would range from 51 dBA to 70 dBA. Sound levels would be at the higher range when working near the habitat and at the lower range at the farther point from the habitat. The USFWS considers 60 dBA L_{eq} hourly to be the threshold of significance for breeding birds. Therefore, the Yuma clapper rail may be significantly impacted by construction noise during the breeding season.

During plant commissioning, a method used to clean piping called "steam blows" creates substantial noise. A steam blow results when high-pressure steam is allowed to escape into the atmosphere through the steam piping to clean the piping. The steam blow is expected to last for approximately 72 hours. The steam blow is necessary after erection and assembly of the systems because the piping and tubing that comprise the steam path accumulate dirt, rust, scale, and construction debris. It prevents the debris from entering the steam turbine. Unsilenced steam blows would produce a sound level of approximately 102 dBA at the closest point to the clapper rail habitat (approximately 650 feet from the source). The project proposes to include a silencer, designed by Fluid Kinetics Corporation, that would provide 44 dBA of attenuation. The resultant sound level in the habitat would be approximately 58 dBA. Therefore, no significant impacts to the Yuma clapper rail would occur from the steam blows.

A detailed project-specific construction noise assessment will be conducted during final design to determine the most practicable measures to reduce/mitigate construction noise impacts. Construction will be phased when practicable to avoid or minimize noise impacts within habitat occupied by the Yuma clapper rail.

Sound levels as a result of plant operation within the Yuma clapper rail habitat located to the northwest and west would be less than 60 dBA L_{eq}. Therefore, no significant noise impacts to the Yuma clapper rail would occur as a result of plant operation.

Bird diverters may be installed in strategic locations along the transmission line routes to make the lines more visible to the birds. This measure is expected to reduce the number of bird casualties associated with the new transmission lines. Therefore, although potential adverse effects on Yuma clapper rail may result from the construction of the proposed project, those impacts will not be significant after implementation of mitigation measures.

9.1 REGIONAL DISTRIBUTION OF MOUNTAIN PLOVER AND LOCAL PLANS

9.1.1 Historic and Existing Known Distribution

The mountain plover (*Charadrius montanus*) is a Federally proposed threatened species and California species of special concern. This species is found in relatively specialized habitats, breeding only in arid shortgrass prairies and wintering in agricultural fields and heavily grazed rangelands. This species is occasionally observed in the Salton Sea area, and is usually associated with recently burned agricultural fields. Declines in the mountain plover population have been attributed to the conversion of the shortgrass prairie habitats to agricultural uses.

9.1.2 Regional and Local Plans

At this time, there is no approved habitat conservation plan for Imperial County. The Coachella Valley NCCP is in progress, but is not yet approved. The Refuge and the CDCA are located within Imperial County, but will not be adversely impacted by project activities.

9.2 OCCURRENCE AND STATUS OF THE SPECIES ON SITE

The mountain plover has not been observed within the SSU6 Project area, or at Obsidian Butte, but 139 individuals were observed in a freshly burned Bermuda grass field near Walker Road and Hoskins Road, about one mile west of the L-Line Interconnection route, on February 6, 2002, by AMEC biologists (D. King personal communication; Figure 5). A complete version of the survey data is located in Appendix A.

9.3 EFFECTS OF THE PROJECT ON MOUNTAIN PLOVER

The project is not expected to affect mountain plover due to the abundance of potential wintering habitat in the project vicinity. The nomadic nature of this species precludes predicting their presence within a given area with any certainty. This species forages within agricultural fields that have been recently cleared or burned, a condition that is highly variable across the Imperial Valley throughout the year. The presence of mountain plover is not expected within any active project construction area. A project biologist will monitor the adjacent areas to determine whether mountain plover are in any adjacent potential habitat.

Sound levels as a result of plant operation within mountain plover habitat would be less than 60 dBA L_{eq}. Therefore, no significant noise impacts to the mountain plover would occur as a result of plant operation.

Bird flight diverters may be installed in strategic locations along the transmission lines to make the lines more visible to birds. This measure is expected to reduce the number of bird casualties associated with the new transmission lines. Therefore, no adverse effects on mountain plover are expected to result from the construction or operation of the proposed project.

10.1 REGIONAL DISTRIBUTION OF SOUTHWESTERN WILLOW FLYCATCHER AND LOCAL PLANS

10.1.1 Historic and Existing Known Distribution

The southwestern willow flycatcher (*Empidonax traillii extimus)* is a Federal- and State-endangered species. It is a summer breeding resident in riparian habitats in southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado, and northwestern Mexico (USFWS 1995). It is restricted to dense riparian woodlands of willow, cottonwood, and other deciduous shrubs and trees. In general, the riparian habitat of this species tends to be rare, isolated, small and/or linear patches, separated by vast expanses of arid lands. The population of southwestern willow flycatcher in southern California was estimated to be less than 80 pairs in the early 1980's (Unitt 1984).

10.1.2 Regional and Local Plans

At this time, there is no approved habitat conservation plan for Imperial County. The Coachella Valley NCCP is in progress, but is not yet approved. The Refuge and the CDCA are located within Imperial County, but will not be adversely impacted by project activities.

10.2 OCCURRENCE AND STATUS OF THE SPECIES ON SITE

The southwestern willow flycatcher has not been observed within the project area. The closest recording of the species was three miles west of Niland, which is outside of the study area for this project. This species' preferred habitat also is not present in the project area.

10.3 EFFECTS OF THE PROJECT ON SOUTHWESTERN WILLOW FLYCATCHER

The proposed project will not adversely affect the southwestern willow flycatcher. The project site does not support the preferred habitat, nor have any individuals been observed. Therefore, no adverse effects on this species are expected to result from the construction or operation of the proposed project.

11.1 REGIONAL DISTRIBUTION OF CALIFORNIA BLACK RAIL AND LOCAL PLANS

11.1.1 Historic and Existing Known Distribution

The California black rail (*Laterallus jamaicensis coturniculus*) is a State-threatened species. The black rail is a marsh-dweller of uncertain status at the Salton Sea. It has suffered statewide population decline and in the interior is common only along the U.S. section of the lower Colorado River Valley (Garrett and Dunn 1981). There are no recent records for Baja California (Wilbur 1987). Occurrence is scattered in the Salton Basin, although some locations have numerous calling birds over periods of several weeks in spring (McCaskie 1979), strongly suggesting nesting. Winter records are few, and detectability for this species is very low in the non-breeding season. Nevertheless, migratory behavior has been suggested (Small 1974).

Black rails require dense vegetation cover at all times. They utilize *Salicornia* (pickleweed) marshes on the coast and *Scirpus* (bulrush) marshes along the Colorado River, but habitat associations in the Salton Basin have not been described.

11.1.2 Regional and Local Plans

At this time, there is no approved habitat conservation plan for Imperial County. The Coachella Valley NCCP is in progress, but is not yet approved. The Refuge and the CDCA are located within Imperial County, but will not be adversely impacted by project activities.

11.2 OCCURRENCE AND STATUS OF THE SPECIES ON SITE

In surveys conducted by Courtney Conway (personal communication 2002; Conway et al. 2002) in 2000-2001, no black rails were detected within the project area.

11.3 EFFECTS OF THE PROJECT ON CALIFORNIA BLACK RAIL

The proposed project will not adversely affect the California black rail. This species has not been observed within the project area. The nearest known black rail sighting is in the vicinity of Seely (P. Unitt personal communication). Therefore, no adverse effects on California black rail are expected to result from the construction or operation of the proposed project.

12.1 REGIONAL DISTRIBUTION OF AMERICAN WHITE PELICAN AND LOCAL PLANS

12.1.1 Historic and Existing Known Distribution

The American white pelican (*Pelecanus erythrorhynchos*) is a State species of special concern. It is a northern breeder that utilizes southern California in the non-breeding season. The Salton Sea supports the largest regional proportion of birds, which primarily stop over on spring and fall migration through the interior of California.

American white pelicans require expanses of fairly shallow, calm water for foraging. Protection from disturbance is also important. These birds prefer fresh water, concentrating on various river mouths on the Salton Sea (Garrett and Dunn 1981). American white pelicans are known to feed and roost in the Salton Sea around the mouth of the Alamo River (B. Radke, personal communication). American white pelicans use the Salton Sea as a migratory stopover and wintering area. As a migratory stopover, individual pelicans appear to use the Salton Sea for a few weeks to a few months before continuing on their migration to Mexico (Shuford et al. 1999). Some birds probably remain at the Salton Sea throughout the winter rather than continuing on to Mexico.

The number of pelicans using the Salton Sea at any time varies substantially. According to counts reported by USFWS and aerial surveys conducted by Point Reyes Bird Observatory (Shuford et al. 2000), the Salton Sea at times supports one of the largest concentrations of white pelicans in the Pacific Flyway. McKay reported maximum counts of white pelicans at the Salton Sea during 1984 to 1990. The maximum counts ranged from 2,000 to 17,000 and usually occurred in February. The average of maximum counts for these years was 6,500 American white pelicans. Based on a sharp decline in counts between 1985 and 1990, the population of pelicans using the Salton Sea was believed to be declining. However, the aerial surveys conducted in 1999 found 16,697 pelicans using the Salton Sea in January and February, a similar number as reported by McKay in 1985 (17,000; Shuford et al. 2000). The following November, however, Shuford et al. (2000) reported 197 American white pelicans at the Salton Sea. The number of white pelicans using this area therefore appears to vary significantly from year to year.

12.1.2 Regional and Local Plans

At this time, there is no approved habitat conservation plan for Imperial County. The Coachella Valley NCCP is in progress, but is not yet approved. The Refuge and the CDCA are located within Imperial County, but will not be adversely impacted by project activities.

12.2 OCCURRENCE AND STATUS OF THE SPECIES ON SITE

A total of 122 American white pelicans have been recorded in the project area. A total of 36 individuals were observed at flyover site D24, 67 pelicans were recorded at flyover site number OBFLY01, two pelicans were recorded at flyover site number OBFLY02, and 17 pelicans were

recorded at flyover site OBFLY10 (Figures 4 through 8). A complete version of the survey data is located in Appendix A.

12.3 EFFECTS OF THE PROJECT ON AMERICAN WHITE PELICAN

Although the American white pelican has been recorded in the project area, the implementation of proposed mitigation measures is expected to keep impacts to a minimum.

During plant commissioning, a method used to clean piping called "steam blows" creates substantial noise. A steam blow results when high-pressure steam is slowed to escape into the atmosphere throughout the steam piping to clean the piping. The steam blow is expected to last for approximately 72 hours. The steam blow is necessary after erection and assembly of the systems because the piping and tubing that comprise the steam path accumulate dirt, rust, scale, and construction debris. It prevents the debris from entering the steam turbine. Unsilenced steam blows would produce a sound level of approximately 102 dBA at the closest point to the American white pelican habitat (approximately 650 feet from the source). The project proposes to include a silencer, designed by Fluid Kinetics Corporation that would provide 44 dBA of attenuation. The resultant sound level in the habitat would be approximately 58 dBA. Therefore, no significant impacts to American white pelican would occur from the steam blows.

Bird flight diverters may be installed in strategic locations along the transmission lines to make the lines more visible to the birds. This measure is expected to reduce the number of bird casualties associated with the new transmission lines. Therefore, no significant adverse effects on American white pelican are expected to result from the construction or operation of the proposed project.

13.1 REGIONAL DISTRIBUTION OF BURROWING OWL AND LOCAL PLANS

13.1.1 Historic and Existing Known Distribution

The burrowing owl (*Athene cunicularia*) is a State species of special concern. The breeding range of the North American subspecies of burrowing owl extends south from southern Canada into the western half of the United States and south into Baja California and central Mexico (Johnsgard 1988). Burrowing owls inhabit open areas such as grasslands, pastures, coastal dunes, desert scrub, and the edges of agricultural fields (Unitt 1984). They use rodent burrows or construct burrows in semi-compacted soil in the slopes of drainage channels next to agriculture fields throughout the year for shelter from weather and predators. As a result, burrowing owls occur at a very high density in the Imperial Valley.

Nesting densities vary from eight pairs per 1-square kilometer in optimal habitat, to one pair per 58-square kilometers in poor quality habitat (Johnsgard 1988). Burrowing owls form short-term pair bonds with male territoriality peaking during pair formation and declining after egg laying. Burrowing owls have declined through much of their range because of habitat loss due to urbanization, agricultural conversion, and destruction of ground squirrel colonies (Remsen 1978). Although burrowing owls are relatively tolerant of lower levels of human activity, there are human-related impacts such as shooting and the introduction of non-native predators that are also causes of their decline (Zarn 1974). This species often nests and perches near roads where they are vulnerable to roadside shooting, being hit by cars, road maintenance operations, and general harassment (Remsen 1978).

13.1.2 Regional and Local Plans

At this time, there is no approved habitat conservation plan for Imperial County. The Coachella Valley NCCP is in progress, but is not yet approved. The Refuge and the CDCA are located within Imperial County, but will not be adversely impacted by project activities.

13.2 OCCURRENCE AND STATUS OF THE SPECIES ON SITE

In the surveys conducted by Ogden in 1994, 25 burrowing owls (seven pairs, seven individuals at burrow, and four foraging individuals) were detected along 16.5 miles of canals and ditches within the project study area. A total of 17 burrows with signs of occupancy also were detected.

In the surveys conducted by URS from 1999 through 2002, numerous owls were observed. Burrowing owls have the potential to occupy the earthen banks of agricultural canals and drains, indicating the owls could inhabit much of the project area. A complete version of the survey data is located in Appendix A.

13.3 EFFECTS OF THE PROJECT ON BURROWING OWL

The burrowing owl is common throughout the study area, and the Imperial Valley in general. The project, however, will not have a significant adverse impact on this species. Pre-construction burrowing owl surveys during the non-breeding season will identify occupied owl habitat in the project vicinity. Where possible, active owl burrows will be avoided. In the event

that active burrows within 150 feet from construction activity cannot be avoided, they will be collapsed and the owls passively relocated. A proposed mitigation and monitoring program will describe the procedures for removing and relocating burrowing owls.

Based on implementation of these measures, no significant adverse effects on burrowing owls are expected to result from the construction or operation of the proposed project.

14.1 REGIONAL DISTRIBUTION OF GULL-BILLED TERN AND LOCAL PLANS

14.1.1 Historic and Existing Known Distribution

The gull-billed tern (*Sterna nilotica*) is a California species of special concern that established a highly disjunct breeding colony on the Salton Sea in the 1920s. Breeding numbers on the Salton Sea fluctuate dramatically between years and locations (McCaskie 1989, 1990, Molina 2000). During the 1990s, the Salton Sea population has ranged from 80 to 170 pairs. Breeding numbers have steadily declined as protected nesting islets and levees become inundated by the rising water level (Garrett and Dunn 1981). The main nesting location of this species is on Rock Hill, outside the project area, supporting up to 131 breeding pairs in 2000 (Molina 2000). Gull-billed terns did nest on the shoreline of Obsidian Butte during the mid-1990s.

Gull-billed terns are versatile feeders and are equally adept at plunge-diving in water and picking invertebrate prey on the wing from ground or vegetation (Cogswell 1977). Agricultural fields, common in the Salton Basin, are often used (Small 1974).

14.1.2 Regional and Local Plans

At this time, there is no approved habitat conservation plan for Imperial County. The Coachella Valley NCCP is in progress, but is not yet approved. The Refuge and the CDCA are located within Imperial County, but will not be adversely impacted by project activities.

14.2 OCCURRENCE AND STATUS OF THE SPECIES ON SITE

In the survey conducted by Ogden in 1994, the closest nesting colony of gull-billed terns was located approximately 2,000 feet from of the project facility (Production Well Pad OB3). There were no sightings recorded within the project study area by URS biologists during 1999-2002 surveys.

14.3 EFFECTS OF THE PROJECT ON GULL-BILLED TERN

Due to the fact that the gull-billed tern has not been observed within the project area, and since the closest sighting occurred eight years ago in an area not currently being utilized by the species, it is not likely that the project will adversely impact the species. Bird flight diverters may be installed in strategic locations along the transmission lines to make the lines more visible to the birds. This measure is expected to reduce the number of bird casualties associated with the new transmission lines. Therefore, no significant adverse effects on gull-billed tern are expected to result from the construction or operation of the proposed project.

The SSU6 Project will not have any significant adverse effect on any listed species, due to implementation of avoidance measures and non-invasive routing of project components.

The potential for cumulative impacts from the project is associated with the minor potential to disrupt animal use of and wildlife movement through the area of the Salton Sink surrounding the plant facilities site. All other impacts affect relatively minor areas and are temporary in nature.

There will be a loss of less than 0.1 acre of suitable Yuma clapper rail habitat, potential construction noise impacts to habitat potentially occupied by listed species, loss of foraging habitat for burrowing owls and the displacement of at least three pairs of owls currently on or adjacent to areas that will be graded. Pre-construction burrowing owl surveys will determine the number of owls that will need to be passively relocated.

The cumulative impacts to specific environmental resources resulting from the proposed project and other projects in the area are less than significant. These other projects would be mitigated through project specific mitigation measures and coordinated regionally through mitigation from the Salton Sea Authority and IID. A list of the proposed projects in the area appears below. The source of this information was the Draft Habitat Conservation Plan for the IID Water Conservation and Transfer Project (IID HCP).

- North Baja Pipe
- State Route 78/111 Expressway (Brawley Bypass)
- Solar Evaporation Pond Pilot Project
- Baja California Power and Sempra Energy Resources
- Imperial Irrigation District Water Conservation and Transfer Project/Habitat Conservation Plan

As discussed in the previous sections, this project will not result in any significant adverse impact to least Bell's vireo, brown pelican, American white pelican, Yuma clapper rail, mountain plover, burrowing owl, gull-billed tern, southwestern willow flycatcher, desert pupfish, or Peirson's milk-vetch. The following measures will be implemented to further ensure that the project will not result in any take of listed species.

Most of the project is proposed in existing agricultural land use and disturbed habitats in the SSU6 Project area southeast of the Salton Sea. These habitats do not normally support sensitive species; however, Yuma clapper rails and burrowing owls use adjacent habitat, such as the marshes and roadsides discussed earlier. CE Obsidian Energy LLC (CEOE) will implement proven protective measures that have been used by CEOE affiliates for previous projects adjacent to clapper rail and burrowing owl habitat to prevent impacts to Yuma Clapper rails and burrowing owls using adjacent habitat.

16.1 PREVENTIVE MEASURES

- **Drainage and Erosion** – The project shall be designed and constructed to prevent spills from endangering adjacent properties and waterways and to prevent runoff resulting in erosion, siltation, or other adverse water quality impacts to sensitive biological habitats.
- **Construction Noise Abatement** – A detailed project-specific construction noise assessment will be conducted during final design to determine the most practicable measures to reduce/mitigate significant construction noise impacts. Construction activities will need to occur throughout the year, with the exception of Production Well Pads OB1, OB2, and OB3 and the pipelines from Production Well Pads OB1, OB2, and OB3 to the plant site and the associated widening of the access road to Obsidian Butte. Construction activities that exceed the 60 dBA standard would not occur during the breeding season (March through July). A construction noise assessment will be conducted during final design to determine practicable mitigation measures to minimize noise impacts from construction at the plant site to occupied listed species breeding habitat.
- **Well Pad Construction Standards** –Grading operations must avoid placing fill in sensitive habitat. Well pad cellars will be designed to prevent wildlife entry and entrapment.
- **Light Shielding** – Light from construction or facility operations activities adjacent to sensitive habitat will be shielded downward to prevent side casting of light toward wildlife and sensitive-species habitat.
- **Wildlife Monitoring** – CEOE will implement the above mitigation measures regarding construction standards, drainage and erosion, and noise abatement. Additionally, CEOE shall participate in a joint monitoring program with Refuge personnel for a three-year period following construction.
- **Construction Monitoring** – During construction of the power plant facilities and associated well pads and transmission lines, a biologist approved by CDFG and USFWS will monitor construction activities near occupied listed species breeding habitat. Noise monitoring within occupied listed species breeding habitat will also be conducted to verify compliance with any applicable noise restrictions.

- **Education Program** - Training will be provided during construction to educate construction contractors of sensitive biological resource issues and areas intended for avoidance. Sensitive resources near construction areas will be identified and clearly marked for avoidance.
- **Revegetation** - Temporary construction disturbance areas will be allowed to naturally revegetate with pre-disturbance native species. Grades and soil surfaces will be maintained to support this type of natural revegetation. Exotic species will be precluded from becoming established through implementation of a three-year post-construction monitoring and control program.

16.2 PROPOSED MITIGATION MEASURES

- **Habitat Creation/Enhancement –** Mitigation for impacts to about 0.05 acres of Yuma clapper rail habitat may include enhancement of an existing wetland potentially used by clapper rail within the project vicinity.
- **Construction Noise Abatement –** Construction activities will need to occur throughout the year, with the exception of Production Well Pads OB1, OB2 and OB3 and the pipelines from Production Well Pads OB1, OB2, and OB3 to the plant site and the associated widening of the access road to Obsidian Butte. These well pads and pipelines will be constructed during the non-breeding season between August and February. A construction noise assessment will be conducted during final design to determine practicable mitigation measures to minimize noise impact to occupied clapper rail habitat. If practicable, the steam blow process will be scheduled to coincide with the non-breeding season of the Yuma clapper rail.

16.3 BURROWING OWL MITIGATION MEASURES

- **Education Program** – Workers will be responsible for attending an education program related to the identification of burrowing owls and their habitat. Workers will be instructed to report all observations of burrowing owls, whether alive, injured, or dead. Workers will be instructed to exercise care when operating in areas inhabited by burrowing owls so as to avoid injuring them. Workers will not be permitted to collapse or fill burrows.
- **Pre-construction –** CEOE will notify the Project Biologist by February 1 prior to ground disturbing activities planned to occur between March 1 and August 1 in burrowing owl habitat. The biologist will survey the area within 150 feet of the construction area, determine whether active burrows are within that area, and collapse burrows if necessary. The procedures for surveying and installing passive relocation vents (one-way exclusion devices) will be consistent with protocols currently approved by CDFG.
- **Construction –** If construction activities are completed during the breeding season (March through July), a biological monitor approved by CDFG and USFWS must be on site.

16.4 ADDITIONAL TRANSMISSION LINE MITIGATION MEASURES

- **Bird Flight Diverter Installation** – The location of the bird flight diverters is based on the flyover survey data (see Appendix A). In locations where the number of birds flying perpendicular to the proposed line exceeded 30 individuals, bird flight diverters will be installed. These locations are as follows: OBFLY1, 02, 06, 09, 10, 14, 17, and D24 (Figure 9). The bird flight diverters will be maintained and replaced as needed.

Patrick Mock, Ph.D. – URS Corporation

Rebecca Loomis – URS Corporation

Brian Lohstroh – URS Corporation

Heather Green – URS Corporation

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Table 1
SENSITIVE SPECIES WITH THE POTENTIAL TO OCCUR WITHIN THE SALTON SEA UNIT 6 STUDY AREA

Common Name	Scientific Name	Federal	State	Observed
Peirson's milkvetch	*Astragalus magdalenae* var. *peirsonii*	Threatened	Species of Special Concern	No
American white pelican	*Pelecanus erythrorhynchos*	None	Species of Special Concern	Yes
Brown pelican	*Pelecanus occidentalis*	Endangered	Endangered	Yes
Double-crested cormorant	*Phalacrocorax auritus*	None	Species of Special Concern	Yes
Least bittern	*Ixobrychus exilis*	None	Species of Special Concern	No
White-faced ibis	*Plegadis chihi*	None	Species of Special Concern	Yes
Cooper's hawk	*Accipiter cooperi*	None	Species of Special Concern	No
Sharp-shinned hawk	*Accipiter striatus*	None	Species of Special Concern	No
Northern harrier	*Circus cyaneus*	None	Species of Special Concern	Yes
Ferruginous hawk	*Buteo regalis*	None	Species of Special Concern	Yes
Merlin	*Falco columbarius*	None	Species of Special Concern	Yes
Osprey	*Pandion haliaetus*	None	Species of Special Concern	Yes
Yuma clapper rail	*Rallus longirostris yumanensis*	Endangered	Threatened	Yes
Mountain plover	*Charadrius montanus*	Proposed Threatened	Species of Special Concern	No
Long-billed curlew	*Numenius americanus*	None	Species of Special Concern	Yes
Black tern	*Chlidonias niger*	None	Species of Special Concern	Yes
California gull	*Larus californicus*	None	Species of Special Concern	Yes
Laughing gull	*Larus atricilla*	None	Species of Special Concern	No
Black skimmer	*Rynchops niger*	None	Species of Special Concern	No
Caspian tern	*Sterna caspia*	None	Species of Special Concern	No
Elegant tern	*Sterna elegans*	None	Species of Special Concern	No
Van Rossem's gull-billed tern	*Sterna nilotica*	None	Species of Special Concern	Yes
Burrowing owl	*Athene cunicularia*	None	Species of Special Concern	Yes
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered	Endangered	No
Loggerhead shrike	*Lanius ludovicianus*	None	Species of Special Concern	No
Least Bell's vireo	*Vireo bellii pusillus*	Endangered	Endangered	No
Horned lark	*Eremophila alpestris actia*	None	Species of Special Concern	Yes
Yellow warbler	*Dendroica petechia*	None	Species of Special Concern	No
Yellow-breasted chat	*Icteria virens*	None	Species of Special Concern	No
LeConte's thrasher	*Toxostoma lecontei*	None	Species of Special Concern	No
Flat-tailed horned lizard	*Phrynosoma mcallii*	Proposed Endangered	Species of Special Concern	No
Desert pupfish	*Cyprinodon macularius*	Endangered	Endangered	No
California black rail	*Laterallus jamaicensis coturniculus*	None	Threatened	No

Table 2
SURVEY DATES AND CONDITIONS FOR THE SSU6 STUDY AREA

Date	Observer	Temperature (°F)	Wind	Cloud Cover
9/22/94	KP, PU	90°	0	10%
10/4/94	KP	No Data	No Data	No Data
10/17/94	KP	No Data	No Data	No Data
11/1/94	DK	No Data	No Data	No Data
11/14/94	KP	No Data	No Data	No Data
11/15/94	KP	No Data	No Data	No Data
12/16/99	PU, GG, JR, TS	55-60°	1-2 mph	Thin
12/17/99	JR, TS	50°	0 mph	Clear
1/7/00	JR, BL, PR	55°	1-5 mph	Scattered rain
1/31/00	JR, BL	65°	5-10 mph	Cloudy
3/24/00	JR, BL	72°	Calm	Partly cloudy
3/31/00	TS, TW	68°	Very strong	Clear
4/14/00	PR, JR	70°	Extremely windy	Mostly sunny
4/28/00	PR, JR	80°	0 mph	Haze
3/5/01	TW, HG	60-75°	1-6 mph	Partly cloudy
4/13/01	TW, HG	55°	0-3 mph	Clear
5/3/01*	TW, HG, PR	65-75°	7-15 mph	Clear
5/4/01*	PR, JR, TW, HG	70°	Calm	Clear
5/17/01	HG, PR, TW, SW	75-78°	Calm	Clear
6/7/01	TW, HG, SW	75°	0-5 mph	Clear
6/8/01	TW, HG, SW	75°	0-5 mph	Clear
6/28/01	TW, SW	65°	0-3 mph	Clear
10/17/01	PR, HG	60-90°	0-2 mph	Partly cloudy
11/15/01	PR, HG	50-65°	0-5 mph	Clear
11/16/01	HG, PR	50°	Calm	Clear
11/20/01	HG, PR	48-68°	0-5 mph	Clear
11/21/01	HG, PR	40-48°	0-2 mph	Clear
11/27/01	PR, HG	45-50°	15-40 mph	Clear
11/28/01	HG, PR	40°	Calm	Clear
12/13/01	PR, HG	40-65°	0-2 mph	Clear
12/14/01	HG, PR	40°	Calm	Partly cloudy
1/10/02	JR, PR	48-68°	0-10 mph	Clear
1/11/02	JR, PR	48-68°	5-10 mph	Clear
2/5/02	HG, BL, PR	43-70°	0-15 mph	Clear
2/6/02	PR, HG, BL	37-52°	0-5 mph	Clear
4/4/02*	JR, HG, RL	58-88°	0-1 mph	Clear
4/26/02	PR	70°	10-20 mph	Partly-mostly cldy
5/14/02	PR	85°	Calm	Hazy/clear
5/23/02	PR	60-76°	0-5 mph	Clear
5/31/02	PR, LH	78-100°	0-5 mph	Partly cloudy
6/5/02	PR, LH	85°	Calm	Hazy
6/13/02	PR, LH	72°	0-3 mph	Hazy
6/14/02	PR, LH	75°	0-2 mph	Hazy

Initials	Observer Name	Qualifications
BL	Brian Lohstroh	B.S. Ecology, Behavior & Evolution, 5 years of experience
DK	David King	B.S. Biology, 14 years of experience
GG	Geoff Gray	M.S. Biology, 6 years of experience
HG	Heather Green	B.S. Environmental Studies, 4 years of experience
JR	Jim Rocks	M.S. Biological Sciences, 5 years of experience
KP	Kris Preston	B.S. Biology, 6 years of experience
LH	Lincoln Hulse	B.S. Biology, 3 years of experience
PR	Phil Richards	B.S. Biological Sciences, 3 years of experience
PU	Phil Unitt	B.S. Zoology, 25 years of experience
RL	Rebecca Loomis	B.S. Environmental Biology, 6 years of experience
TS	Tom Strong	Ph.D. Biology, 15 years of experience
TW	Theresa Weber	B.A. Biology, 2 years of experience

*focused plant surveys conducted

Table 3
POTENTIAL IMPACTS TO SENSITIVE SPECIES BY PROJECT COMPONENT

Species	Plant Site	Transmission Lines	Well Pads	Pipelines
American White Pelican (*Pelecanus erythrorhynchos*)	Moderate. White pelicans have been observed at this location.	Low. White pelicans have been observed, but mitigation measures should decrease impacts.	Low. White pelicans have not been observed at this location.	Low. White pelicans have not been observed at this location.
Brown Pelican (*Pelecanus occidentails*)	Low. Brown pelicans have not been observed at this location.	Low. Brown pelicans have been observed, but mitigation measures should decrease impacts.	Low. Brown pelicans have not been observed at this location. Attempted to nest on Obsidian Butte in the mid 1990s.	Moderate. Brown pelicans have been observed at this location.
Yuma Clapper Rail (*Rallus longirostris yumanensis*)	Low. Potential habitat in Vail Drain 5 along Severe Road. Rail observed near McKendry Road to Obsidian Butte. Construction noise requires a detailed assessment during final design phase.	Low. This species has not been observed at this location.	Moderate. Yuma clapper rail detected adjacent to OB1 and OB2 well pads.	Moderate. Yuma clapper rail observed at McKendry Road to Obsidian Butte (pipeline to OB3 well pad and adjacent to pipeline for OB1).
Mountain Plover (*Charadrius montanus*)	Low. This species has not been observed at this location.	Moderate. This species has been observed about 1 mile from L line route near Lack Road.	Low. This species has not been observed at this location.	Low. This species has not been observed at this location.
Gull-billed Tern (*Sterna nilotica*)	Low. This species has not been observed at this location.	Low. This species has not been observed at this location.	Low. This species has not been observed at this location, but historically nested on Obsidian Butte in the mid-1990s.	Low. This species has not been observed at this location.
Burrowing Owl (*Athene cunicularia*)	Moderate. Burrowing owls have been observed at this location.	Moderate. Burrowing owls have been observed at this location.	Moderate. Burrowing owls have been observed at OB2 and OBl 3 well pads	Moderate. Burrowing owls have been observed at this location.
Southwestern Willow Flycatcher (*Empidonax traillii extimus*)	Low. This species has not been observed at this location.	Low. This species has not been observed at this location.	Low. This species has not been observed at this location.	Low. This species has not been observed at this location.
Least Bell's Vireo (*Vireo bellii pusillus*)	Low. This species has not been observed at this location.	Low. This species has not been observed at this location.	Low. This species has not been observed at this location.	Low. This species has not been observed at this location.

Species	Plant Site	Transmission Lines	Well Pads	Pipelines
Desert Pupfish (*Cyprinodon macularius*)	Low. This species has not been observed at this location.	Low. This species has not been observed at this location.	Low. This species has not been observed at this location.	Low. This species has not been observed at this location since 1994, but has historically been found at the mouth of all Vail Drains in the project area.
Peirson's Milkvetch (*Astragalus magdalenae* var. *peirsonii*)	Low. This species has not been observed at this location.	Low. This species has not been observed at this location.	Low. This species has not been observed at this location.	Low. This species has not been observed at this location.

Table 4
DESERT PUPFISH SURVEY RESULTS

Drain	Year of Survey	Month and Days of Survey	No. of Pupfish
Vail 4A	1993	Aug. 17 and Aug. 18, Sept. 9 and 10	0
	1994	Aug. 4 and 5, Aug 15 and 16, Aug. 16 and 17	0
	1996	July 10, July 29 and October 8	0
	1998	Not Surveyed	0
Vail 3	1993	Aug. 18 and 19, Sept. 9 and 10	0
	1994	July 26 and July 27, Aug. 10 and 11, Aug. 31 and Sept. 1	0
	1996	Not Surveyed	0
	1998	Not Surveyed	0
Vail 3A	1993	Aug. 18 and 19, Sept. 9 and 10	0
Vail 5 (Lat)	1993	Aug. 17 and 18, Sept. 8 an d9 – Above McKendry Road	0
	1993	Aug. 17 and 18, Sept. 20 and 21 – Below McKendry Road*	0
	1994	July 26 and July 27, Aug. 15 and 16 – Above McKendry Road	0
	1994	July 26 and July 27, Aug. 15 and 16 – Below McKendry Road*	53
	1996	July 10, July 29 and August 27	0
	1998	August 25 – Below McKendry Road*	0
	1998	Above McKendry Road – Not Surveyed	-
	2001	August 31 – Below McKendry Road	0
	2002	February 9,2002 Access road to Obsidian Butte	0

Date Source: Sharon Keeney, California Department of Fish and Game, 2002; Dr. A. Schoenherr Feb. 2002

* Shoreline pool. In 1994, 53 desert pupfish were captured during the time between 0740 on August 15 and 0708 on August 16.

It must be noted that in 1993 and 1994, traps were set overnight. After 1994, however, traps were fished for three to four hours during the day and were carefully attended; the change in survey protocol resulted from problems with vandalism and theft.

Table 5
ESTIMATED HABITAT IMPACTED BY PROJECT COMPONENT IN ACRES*

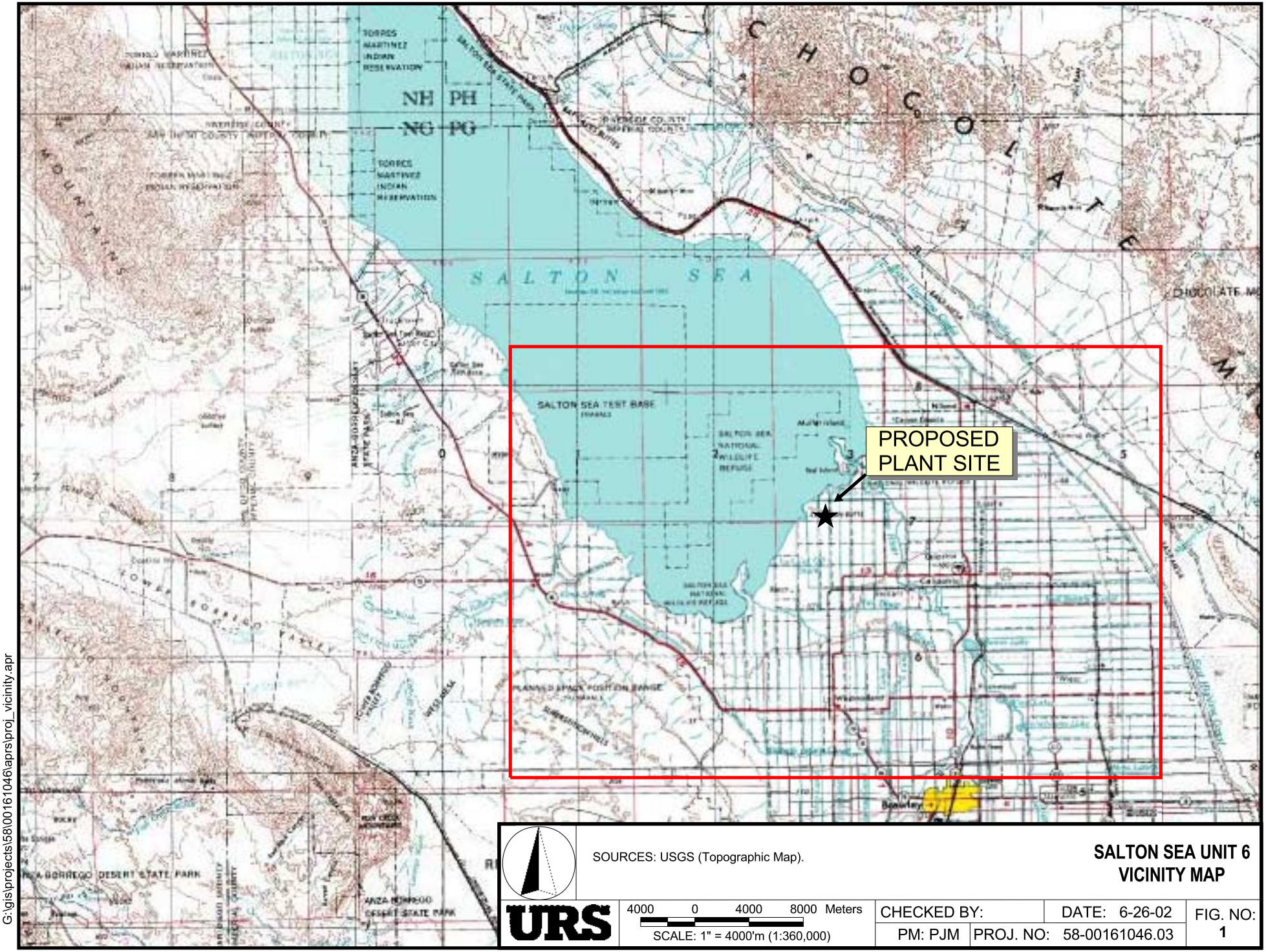
Project Component	Agriculture	Tamarisk scrub	Desert sink scrub	Creosote bush scrub	Freshwater Marsh	Developed/ disturbed	Total
Plant Facilities Site	80.0	0	0	0	0	0	80.0
Production wells	16.8	0	2.0	0	0	4.8	23.6
Injection wells	14.5	0	0	0	0	0	14.5
Well Pipelines	140.0	0.33	0.02	0	0.08	0	140.43
Water Supply line	0.7	0	0	0	0	0	0.7
L-Line Interconnection	71.3	0	0.5	14.2	0	1.5	87.5
IID Midway Interconnection	79.0	0	0	0	0	7.3	86.3
Pull Sites	27.9	0	0	2.3	0	1.7	31.9
T-Line Staging Area/ Access Roads[1]	0	0	0	0	0	38.0	38.0
Totals	**430.2**	**0.33**	**2.52**	**16.5**	**0.08**	**53.3**	**502.93**

* All acreages approximate

[1] Implementation of the transmission lines includes the following assumptions:

8 acres of impact would occur in disturbed habitat for access roads

30 acres of impact would occur in disturbed habitat for staging areas



SOURCES: USGS (Topographic Map).

SALTON SEA UNIT 6
VICINITY MAP

URS

4000 0 4000 8000 Meters
SCALE: 1" = 4000'm (1:360,000)

CHECKED BY:	DATE: 6-26-02	FIG. NO: 1
PM: PJM	PROJ. NO: 58-00161046.03	

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Legend:

Proposed Facilities:

- Plant Site Boundary
- L-Line Interconnection
- IID Midway Interconnection
- Production Well Pads
- Injection Well Pads
- Production Well Lines
- Injection Wells Lines

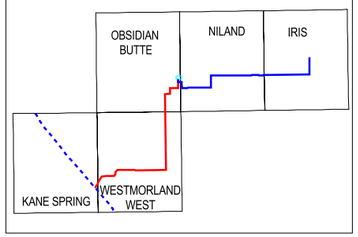
L-#, M-#

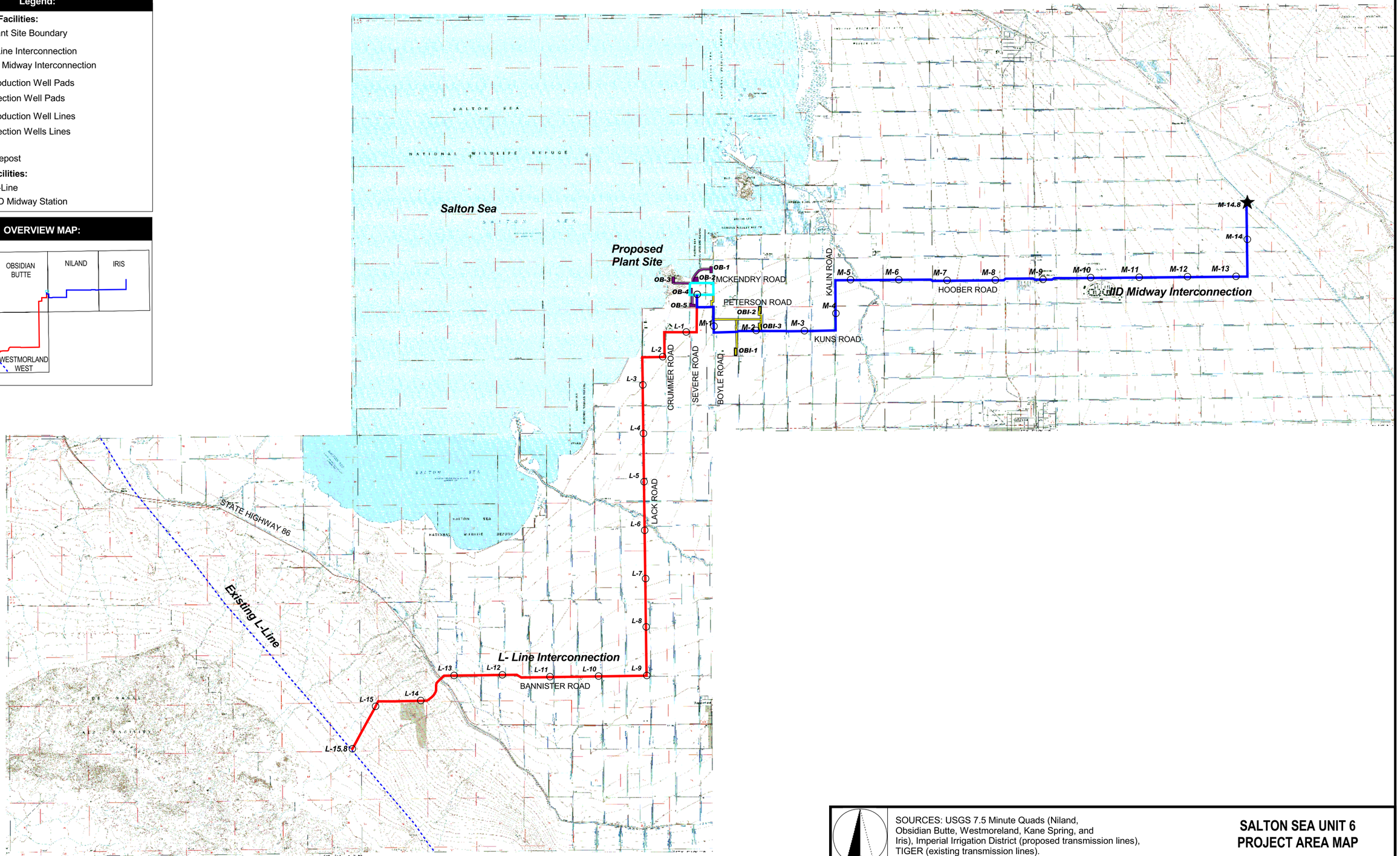
- Milepost

Existing Facilities:

- L-Line
- IID Midway Station

OVERVIEW MAP:





SOURCES: USGS 7.5 Minute Quads (Niland, Obsidian Butte, Westmoreland, Kane Spring, and Iris), Imperial Irrigation District (proposed transmission lines), TIGER (existing transmission lines).

SALTON SEA UNIT 6
PROJECT AREA MAP

URS

5000 0 5000 10000 Feet

SCALE: 1" = 10,000' (1:120,000)

CHECKED BY:	DATE: 6-26-02	FIG NO: 2
PM: PM	PROJ. NO: 58-00161046.03	

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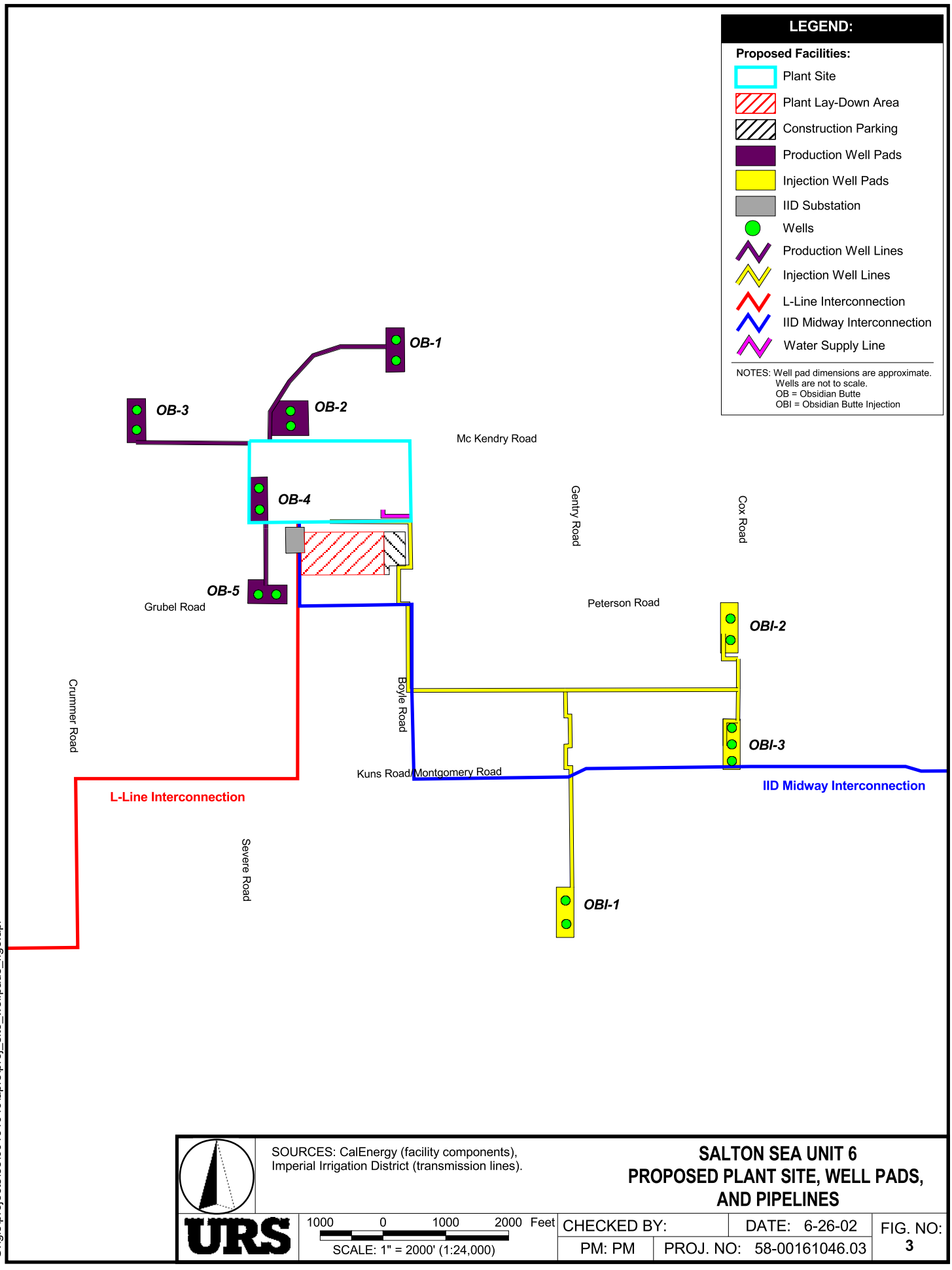

SOURCES: CalEnergy (facility components), Imperial Irrigation District (transmission lines).

SALTON SEA UNIT 6
PROPOSED PLANT SITE, WELL PADS, AND PIPELINES

URS

1000 0 1000 2000 Feet

SCALE: 1" = 2000' (1:24,000)

CHECKED BY:	DATE: 6-26-02	FIG. NO: 3
PM: PM	PROJ. NO: 58-00161046.03	

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Legend:

Vegetation:
- AGRICULTURE
- ALAMO RIVER/OW AND TAMARISK SCRUB
- CLEARED
- DESERT SINK SCRUB
- DEVELOPED
- DISTURBED RIPARIAN SCRUB
- FRESHWATER MARSH
- OPEN WATER
- OPEN WATER WITH RIPARIAN SCRUB
- ROAD/AGRICULTURE DITCH
- SALTBUSH SCRUB
- TAMARISK SCRUB
- UNVEGETATED HABITAT

- 2000-foot Project Buffer Survey Area
- Flyover Survey Location

Sensitive Species Locations (2001 CNDDB):
- DESERT PUPFISH
- VAN ROSSEM'S GULL-BILLED TERN
- YUMA CLAPPER RAIL

Sensitive Species Locations (URS Surveys):
- YUMA CLAPPER RAIL
- BURROWING OWL

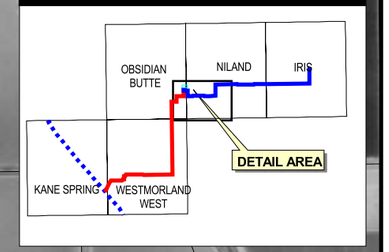
Proposed Facilities:
- L-Line Interconnection
- IID Midway Interconnection
- Production Well Pads
- Injection Well Pads
- Well
- Production Well Lines
- Injection Wells Lines
- Plant Site
- Construction Laydown Area
- Construction Parking Area
- IID Substation

L-#, M-#
- Milepost

Existing Facilities:
- L-Line
- Roads
- 7.5-Minute Quad Outlines

NOTES: Well pad dimensions are approximate.
Wells are not to scale.
OB = Obsidian Butte
OBI = Obsidian Butte Injection

OVERVIEW MAP:



Salton Sea
Grubel
Sinclair
Mc Kendry
Gentry
Cox
Garst
Hatfield
Petersen
Dewey
Merkly
Boyle
Severe
Crummel
Lack
Lindsey
Young
Kalin
OB-1
OB-2
OB-3
OB-4
OB-5
OBI-1
OBI-2
OBI-3
Proposed Plant Site
IID Midway Interconnection
L-Line Interconnection
OBFLY01
OBFLY02
OBFLY06
OBFLY08
OBFLY09
OBFLY10
OBFLY17
L-1
L-2
L-3
M-1
M-2
M-3
M-4
M-5
USGS

SOURCES: NCSC (farmland data), URS (approximate proposed site and transmission lines), TIGER (existing transmission lines) USGS (Aerial Photograph flown September1992).

SALTON SEA UNIT 6
VEGETATION AND SENSITIVE SPECIES IN PROJECT VICINITY

URS

1000 0 1000 2000 Feet
SCALE: 1" = 2,000' (1:24000)

CHECKED BY:	DATE: 7-10-02	FIG NO: 4
PM: PM	PROJ. NO: 58-00161046.01	

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Legend:

Vegetation:
- AGRICULTURE
- ARROWWEED SCRUB
- BARREN
- DEVELOPED
- ROAD/AGRICULTURE DITCH
- TAMARISK SCRUB

- 2000-foot Project Buffer Survey Area
- Flyover Survey Location

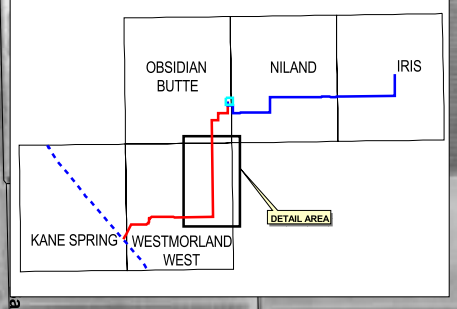
Sensitive Species Locations (CNDDB):
- DESERT PUPFISH
- BURROWING OWL
- YUMA CLAPPER RAIL

Sensitive Species Locations (URS Surveys):
- BURROWING OWL
- MOUNTAIN PLOVER

Proposed Facilities:
- L-Line Interconnection
- IID Midway Interconnection
- L-# Milepost

Existing Facilities:
- Existing "L" Line
- Roads
- 7.5-Minute Quad Outlines

OVERVIEW MAP:



L-4
L-5
L-6
L-7
L-8
L-9
L-10
L-11
OBFLY03
OBFLY04 ALONG BANNISTER
L-Line Interconnection
IID Midway Interconnection
Bowles Road
Vail
Foulds Road
Walker
Walker Rorad
Walker Road
Dickerson Road
Bannister Road
Baker Road
Bruchard Road
Gecko Road
Hoskins Road
Mc Nerney Road
Kingsley Road
Martin Road
Pellett
USGS

SOURCES: URS (approximate proposed site and transmission lines and vegetation mapping), TIGER (existing transmission lines), USGS (aerial photograph flown 1992), CDFG (CNDDB point locations).

URS

1000 0 1000 2000 Feet

SCALE: 1" = 2,000' (1:24000)

SALTON SEA UNIT 6
VEGETATION AND SENSITIVE SPECIES IN PROJECT VICINITY

CHECKED BY:	DATE: 6-27-02	FIG NO: 5
PM: PM	PROJ. NO: 58-00161046.01	

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Legend:

Vegetation:
- AGRICULTURE
- CREOSOTE BUSH SCRUB
- DEVELOPED
- ROAD/AGRICULTURE DITCH

- 2000-foot Project Buffer Survey Area
- Flyover Survey Location

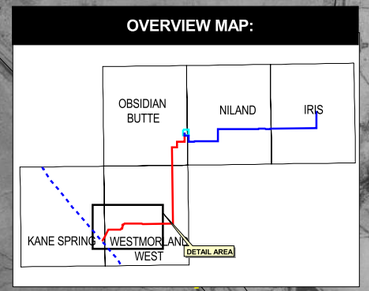
Sensitive Species Locations (CNDDB 2001):
- BURROWING OWL

Sensitive Species Locations (URS Surveys):
- BURROWING OWL

Proposed Facilities:
- L-Line Interconnection
- IID Midway Interconnection
- L-# Milepost

Existing Facilities:
- L-Line
- Roads
- 7.5-Minute Quad Outlines

OVERVIEW MAP:



USGS

Howenstein

Vendel

Baker

Walker

Walker

Hoskins

Bruchard

OBFLY05

L-Line Interconnection

L-13

L-12

L-11

L-10

Gecko

Bannister

L-14

OBFLY04 ALONG BANNISTER

Pellett

Evans

Ora

Garvey

Orr

Buck

Baughman

L-15

Existing "L-line"

USGS

USGS

G:\gis\projects\58\00161046\aprs\map3_vegetation_2000scale_fig6_no86.apr

SOURCES: URS (approximate proposed site and transmission lines, vegetation mapping), TIGER (existing transmission lines), TerraServer (aerial photograph).

URS

1000 0 1000 2000 Feet

SCALE: 1" = 2,000' (1:24000)

SALTON SEA UNIT 6
VEGETATION AND SENSITIVE SPECIES IN PROJECT VICINITY

CHECKED BY:	DATE: 6-27-02	FIG NO:
PM: PM	PROJ. NO: 58-00161046.01	6

Legend:

Vegetation:

- AGRICULTURE
- ALAMO RIVER/OW AND TAMARISK SCRUB
- DEVELOPED
- ROAD/AGRICULTURE DITCH
- 2000-foot Project Buffer Survey Area
- Flyover Survey Location

Sensitive Species Locations (URS Surveys):

- BURROWING OWL

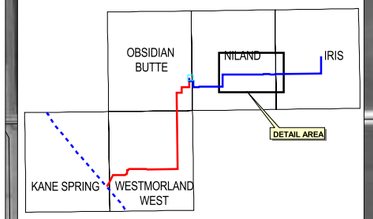
Proposed Facilities:

- L-Line Interconnection
- IID Midway Interconnection
- M-3 Milepost

Existing Facilities:

- L-Line
- Roads
- 7.5-Minute Quad Outlines

OVERVIEW MAP:



Simpson
Merkley
Sinclair
USGS
Kalin
Brandt
English
State Highway 111
Blair
OBFLY16
OBFLY15
OBFLY14
M-3
M-4
M-5
M-6
M-7
M-8
M-9
M-10
Hoober
IID Midway Interconnection
CALIFORNIA STATE PRISON
Dewey
Peterson
Montgomery
Lindsey

SOURCES: URS (approximate proposed site and transmission lines and vegetation mapping), TIGER (existing transmission lines), TerraServer (aerial photographs), Landiscore (1994 color aerial).

1000 0 1000 2000 Feet

SCALE: 1" = 2,000' (1:24000)

SALTON SEA UNIT 6
VEGETATION AND SENSITIVE SPECIES IN PROJECT VICINITY

CHECKED BY:	DATE: 6-27-02	FIG NO: 7
PM: PM	PROJ. NO: 58-00161046.01	

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Legend:

Proposed Facilities:

- Plant Site Boundary
- L-Line Interconnection
- IID Midway Interconnection
- Production Well Pads
- Injection Well Pads
- Production Well Lines
- Injection Wells Lines

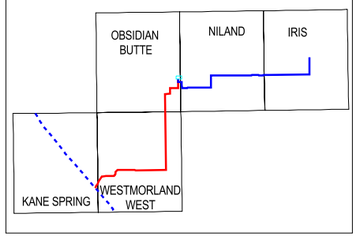
L-#, M-#

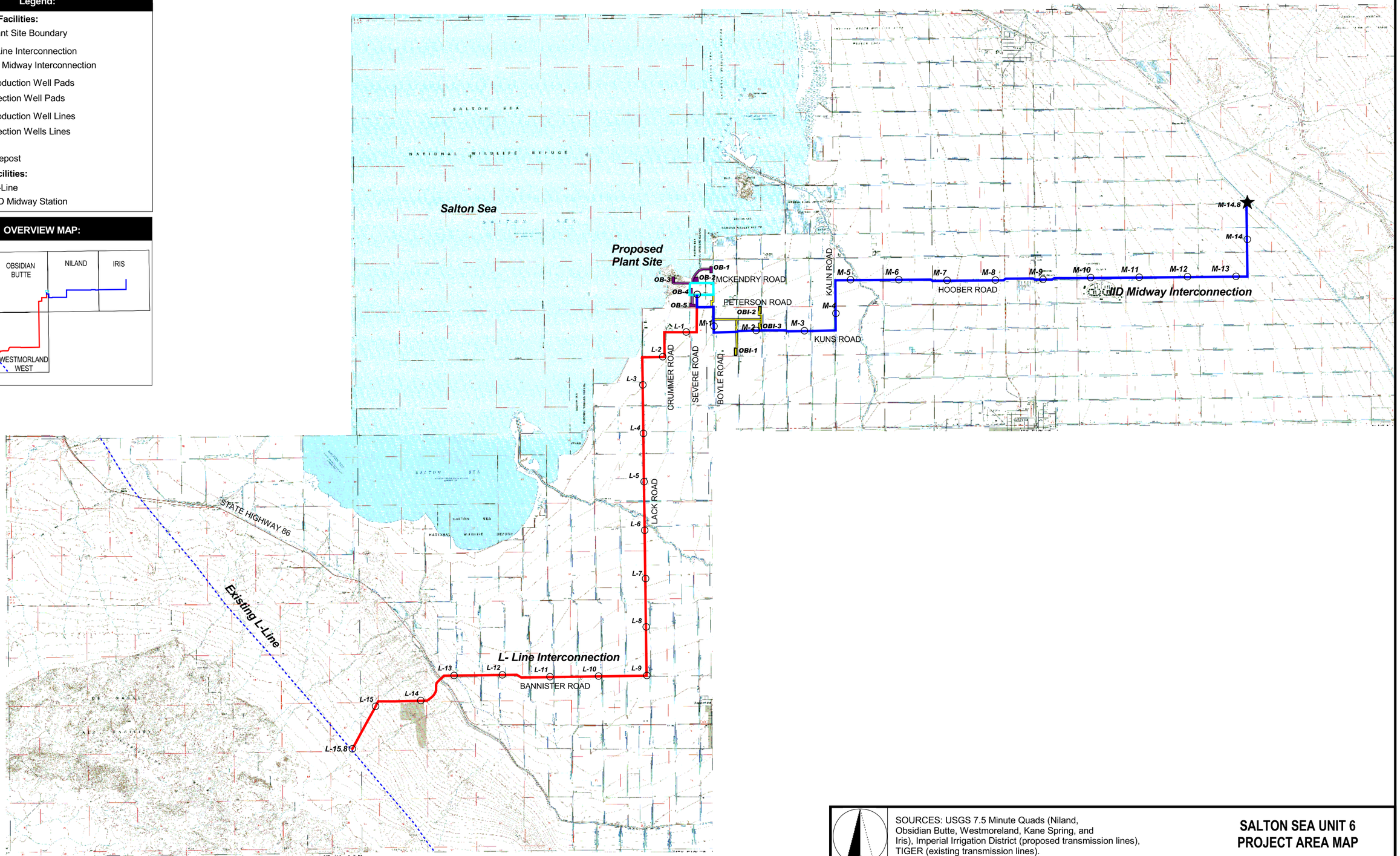
- Milepost

Existing Facilities:

- L-Line
- IID Midway Station

OVERVIEW MAP:





SOURCES: USGS 7.5 Minute Quads (Niland, Obsidian Butte, Westmoreland, Kane Spring, and Iris), Imperial Irrigation District (proposed transmission lines), TIGER (existing transmission lines).

SALTON SEA UNIT 6
PROJECT AREA MAP

URS

5000 0 5000 10000 Feet

SCALE: 1" = 10,000' (1:120,000)

CHECKED BY:	DATE: 6-26-02	FIG NO: 2
PM: PM	PROJ. NO: 58-00161046.03	

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Legend:

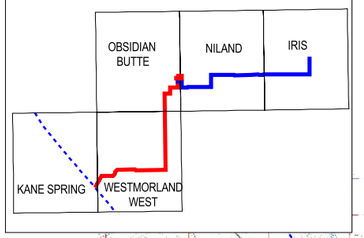
Proposed Facilities:

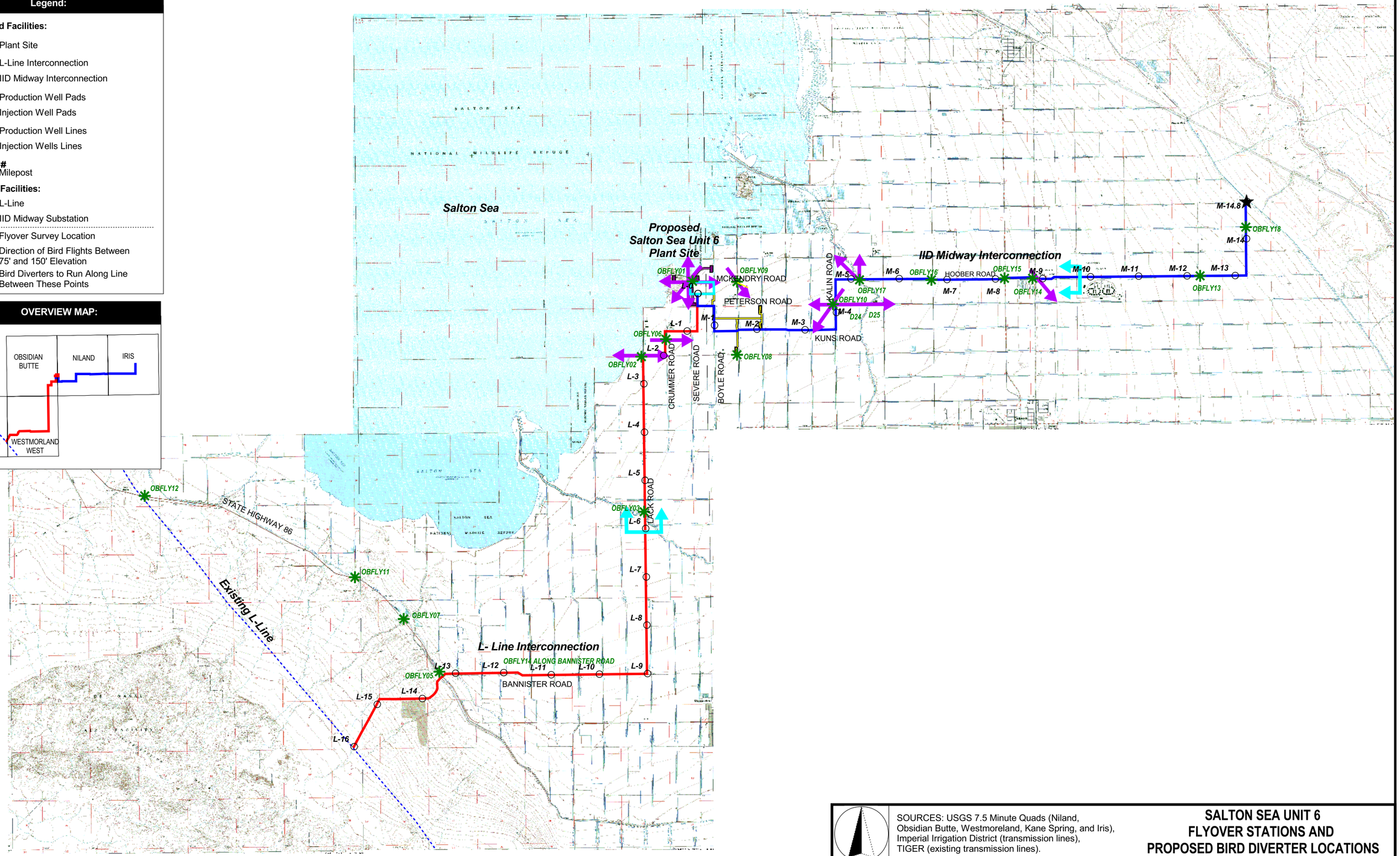
- Plant Site
- L-Line Interconnection
- IID Midway Interconnection
- Production Well Pads
- Injection Well Pads
- Production Well Lines
- Injection Wells Lines
- ***L-#, M-#*** Milepost

Existing Facilities:

- L-Line
- IID Midway Substation
- Flyover Survey Location
- Direction of Bird Flights Between 75' and 150' Elevation
- Bird Diverters to Run Along Line Between These Points

OVERVIEW MAP:





SOURCES: USGS 7.5 Minute Quads (Niland, Obsidian Butte, Westmoreland, Kane Spring, and Iris), Imperial Irrigation District (transmission lines), TIGER (existing transmission lines).

SALTON SEA UNIT 6 FLYOVER STATIONS AND PROPOSED BIRD DIVERTER LOCATIONS

URS

5000 0 5000 10000 Feet

SCALE: 1" = 10,000' (1:120,000)

CHECKED BY:	DATE: 6-27-02	FIG NO: 9
PM: PM	PROJ. NO: 58-00161046.03	

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Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: BLM1		**Direction: N/A** **Elevation: N/A**		
NONE	0		none	NONE
none		*none*		
	0	**- Total For BLM1 and N/A and N/A**		
Station ID: BLM2		**Direction: N/A** **Elevation: N/A**		
NONE	0		none	NONE
none		*none*		
	0	**- Total For BLM2 and N/A and N/A**		
Station ID: D24		**Direction: N-S** **Elevation: H**		
DC CO	6	AGR	water	SSC
double-crested cormorant		*Phalacrocorax auritus*		
	6	**- Total For D24 and N-S and H**		
Station ID: D24		**Direction: NW-SE** **Elevation: H**		
CA EG	7	AGR	shorebird	NL
cattle egret		*Bubulcus ibis*		
DC CO	1	AGR	water	SSC
double-crested cormorant		*Phalacrocorax auritus*		
GULLS	10	AGR	shorebird	NL
gulls		*Larus spp.*		
GULLS	40	AGR	shorebird	NL
gulls		*Larus spp.*		
GULLS	75	AGR	shorebird	NL
gulls		*Larus spp.*		
	133	**- Total For D24 and NW-SE and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: D24		**Direction: SE-NW** **Elevation: H**		
AW PE American white pelican	36	AGR *Pelecanus erythrorhynchos*	water	NL
	36	**- Total For D24 and SE-NW and H**		
Station ID: D24		**Direction: W-E** **Elevation: M**		
RW BL red-winged blackbird	100	AGR *Agelaius phoeniceus*	passerine	NL
	100	**- Total For D24 and W-E and M**		
Station ID: OBFLY01		**Direction:** **Elevation:**		
CL RA clapper rail	2	AG/BUTTE/MARSH *Rallus longirostris*	water	THREATENED
	2	**- Total For OBFLY01 and and**		
Station ID: OBFLY01		**Direction:** **Elevation: H**		
GULLS gulls	1	 *Larus spp.*	shorebird	NL
	1	**- Total For OBFLY01 and and H**		
Station ID: OBFLY01		**Direction: CIRC** **Elevation: H**		
FO TE Forster's tern	1	AG/BUTTE/MARSH *Sterna forsteri*	shorebird	SSC
	1	**- Total For OBFLY01 and CIRC and H**		
Station ID: OBFLY01		**Direction: E-SW** **Elevation: L**		
DC CO double-crested cormorant	1	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
	1	**- Total For OBFLY01 and E-SW and L**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY01		**Direction: E-W** **Elevation: H**		
DC CO double-crested cormorant	1	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
DC CO double-crested cormorant	4	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
	5	**- Total For OBFLY01 and E-W and H**		
Station ID: OBFLY01		**Direction: E-W** **Elevation: L**		
BN ST black-necked stilt	1	AG/BUTTE/MARSH *Himantopus mexicanus*	shorebird	NL
DC CO double-crested cormorant	1	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
GR HE green heron	1	AG/BUTTE/MARSH *Butorides virescens*	shorebird	NL
KILL killdeer	4	AG/BUTTE/MARSH *Charadrius vociferus*	shorebird	NL
TERN tern	1	AG/BUTTE/MARSH *Sterna spp.*	shorebird	NL
	8	**- Total For OBFLY01 and E-W and L**		
Station ID: OBFLY01		**Direction: E-W** **Elevation: M**		
BN ST black-necked stilt	1	AG/BUTTE/MARSH *Himantopus mexicanus*	shorebird	NL
CA EG cattle egret	1	AG/BUTTE/MARSH *Bubulcus ibis*	shorebird	NL
	2	**- Total For OBFLY01 and E-W and M**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY01		**Direction: N - S** **Elevation: H**		
WF IB white-faced ibis	4	AG/BUTTE/MARSH *Plegadis chihi*	shorebird	SSC
	4	**- Total For OBFLY01 and N - S and H**		
Station ID: OBFLY01		**Direction: N - S** **Elevation: L**		
BC NH black crowned night-heron	1	AG/BUTTE/MARSH *Nycticorax nycticorax*	shorebird	SENS
DC CO double-crested cormorant	2	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
DC CO double-crested cormorant	3	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
	6	**- Total For OBFLY01 and N - S and L**		
Station ID: OBFLY01		**Direction: N - S** **Elevation: M**		
CA EG cattle egret	1	AG/BUTTE/MARSH *Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY01 and N - S and M**		
Station ID: OBFLY01		**Direction: N - W** **Elevation: L**		
DC CO double-crested cormorant	2	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
FO TE Forster's tern	1	AG/BUTTE/MARSH *Sterna forsteri*	shorebird	SSC
	3	**- Total For OBFLY01 and N - W and L**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY01		**Direction: N-S** **Elevation: H**		
AW PE American white pelican	8	AG/BUTTE/MARSH *Pelecanus erythrorhynchos*	water	NL
BL TE black tern	2	AG/BUTTE/MARSH *Chlidonias niger*	shorebird	NL
CA EG cattle egret	3	AG/BUTTE/MARSH *Bubulcus ibis*	shorebird	NL
CA EG cattle egret	4	AG/BUTTE/MARSH *Bubulcus ibis*	shorebird	NL
DC CO double-crested cormorant	1	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
WF IB white-faced ibis	3	AG/BUTTE/MARSH *Plegadis chihi*	shorebird	SSC
	21	**- Total For OBFLY01 and N-S and H**		
Station ID: OBFLY01		**Direction: N-S** **Elevation: L**		
BC NH black crowned night-heron	1	AG/BUTTE/MARSH *Nycticorax nycticorax*	shorebird	SENS
BC NH black crowned night-heron	1	AG/BUTTE/MARSH *Nycticorax nycticorax*	shorebird	SENS
BC NH black crowned night-heron	2	AG/BUTTE/MARSH *Nycticorax nycticorax*	shorebird	SENS
BL TE black tern	2	AG/BUTTE/MARSH *Chlidonias niger*	shorebird	NL
BN ST black-necked stilt	2	AG/BUTTE/MARSH *Himantopus mexicanus*	shorebird	NL
CORM cormorant	1	AG/BUTTE/MARSH *Phalacrocorax spp.*	water	NL
DC CO double-crested cormorant	1	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code Common Name	No. Observed	Habitat Scientific Name	Bird Type Comments	Status
Station ID: OBFLY01		**Direction: N-S** **Elevation: L**		
DC CO double-crested cormorant	2	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
DC CO double-crested cormorant	3	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
DC CO double-crested cormorant	3	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
GR EG great egret	1	AG/BUTTE/MARSH *Casmerodius albus*	shorebird	NL
GULLS gulls	1	 *Larus spp.*	shorebird	NL
KILL killdeer	1	AG/BUTTE/MARSH *Charadrius vociferus*	shorebird	NL
RB GU ring-billed gull	1	 *Larus delawarensis*	shorebird	NL
RB GU ring-billed gull	3	 *Larus delawarensis*	shorebird	NL
WF IB white-faced ibis	22	AG/BUTTE/MARSH *Plegadis chihi*	shorebird	SSC
	47	**- Total For OBFLY01 and N-S and L**		
Station ID: OBFLY01		**Direction: N-S** **Elevation: M**		
BN ST black-necked stilt	1	AG/BUTTE/MARSH *Himantopus mexicanus*	shorebird	NL
CA EG cattle egret	1	AG/BUTTE/MARSH *Bubulcus ibis*	shorebird	NL
CA EG cattle egret	1	AG/BUTTE/MARSH *Bubulcus ibis*	shorebird	NL
CA EG cattle egret	3	AG/BUTTE/MARSH *Bubulcus ibis*	shorebird	NL

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY01		**Direction: N-S** **Elevation: M**		
CORM cormorant	3	AG/BUTTE/MARSH *Phalacrocorax spp.*	water	NL
DC CO double-crested cormorant	1	 *Phalacrocorax auritus*	water	SSC
DC CO double-crested cormorant	1	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
DC CO double-crested cormorant	1	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
DC CO double-crested cormorant	16	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
FO TE Forster's tern	1	AG/BUTTE/MARSH *Sterna forsteri*	shorebird	SSC
GULLS gulls	2	 *Larus spp.*	shorebird	NL
WF IB white-faced ibis	1	AG/BUTTE/MARSH *Plegadis chihi*	shorebird	SSC
WF IB white-faced ibis	22	AG/BUTTE/MARSH *Plegadis chihi*	shorebird	SSC
	54	**- Total For OBFLY01 and N-S and M**		
Station ID: OBFLY01		**Direction: NE-SW** **Elevation: H**		
SN GO snow goose	11	AG/BUTTE/MARSH *Chen caerulescens*	shorebird	NL
	11	**- Total For OBFLY01 and NE-SW and H**		
Station ID: OBFLY01		**Direction: NE-SW** **Elevation: L**		
FO TE Forster's tern	1	AG/BUTTE/MARSH *Sterna forsteri*	shorebird	SSC

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
	1	**- Total For OBFLY01 and NE-SW and L**		
Station ID: OBFLY01		**Direction: NE-SW** **Elevation: M**		
AW PE American white pelican	**58**	AG/BUTTE/MARSH *Pelecanus erythrorhynchos*	water	NL
DC CO double-crested cormorant	**2**	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
WF IB white-faced ibis	**55**	AG/BUTTE/MARSH *Plegadis chihi*	shorebird	SSC
	115	**- Total For OBFLY01 and NE-SW and M**		
Station ID: OBFLY01		**Direction: NW-SE** **Elevation: H**		
WF IB white-faced ibis	**15**	AG/BUTTE/MARSH *Plegadis chihi*	shorebird	SSC
	15	**- Total For OBFLY01 and NW-SE and H**		
Station ID: OBFLY01		**Direction: NW-SE** **Elevation: L**		
GB HE great blue heron	**1**	AG/BUTTE/MARSH *Ardea herodias*	shorebird	SENS
	1	**- Total For OBFLY01 and NW-SE and L**		
Station ID: OBFLY01		**Direction: S - N** **Elevation: H**		
FO TE Forster's tern	**1**	AG/BUTTE/MARSH *Sterna forsteri*	shorebird	SSC
NO PI northern pintail	**1**	AG/BUTTE/MARSH *Anas acuta*	water	NL
	2	**- Total For OBFLY01 and S - N and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code Common Name	No. Observed	Habitat Scientific Name	Bird Type Comments	Status
Station ID: OBFLY01		**Direction: S - N** **Elevation: M**		
CA EG cattle egret	1	AG/BUTTE/MARSH *Bubulcus ibis*	shorebird	NL
DC CO double-crested cormorant	2	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
	3	- Total For OBFLY01 and S - N and M		
Station ID: OBFLY01		**Direction: S-N** **Elevation: H**		
BL TE black tern	6	AG/BUTTE/MARSH *Chlidonias niger*	shorebird	NL
GULLS gulls	2	 *Larus spp.*	shorebird	NL
GULLS gulls	90	 *Larus spp.*	shorebird	NL
	98	- Total For OBFLY01 and S-N and H		
Station ID: OBFLY01		**Direction: S-N** **Elevation: L**		
BL TE black tern	2	AG/BUTTE/MARSH *Chlidonias niger*	shorebird	NL
BN ST black-necked stilt	1	AG/BUTTE/MARSH *Himantopus mexicanus*	shorebird	NL
CA EG cattle egret	2	AG/BUTTE/MARSH *Bubulcus ibis*	shorebird	NL
CA EG cattle egret	2	AG/BUTTE/MARSH *Bubulcus ibis*	shorebird	NL
CORM cormorant	1	AG/BUTTE/MARSH *Phalacrocorax spp.*	water	NL
DC CO double-crested cormorant	1	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY01		**Direction: S-N** **Elevation: L**		
DC CO double-crested cormorant	1	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
DC CO double-crested cormorant	2	 *Phalacrocorax auritus*	water	SSC
DC CO double-crested cormorant	2	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
FO TE Forster's tern	1	AG/BUTTE/MARSH *Sterna forsteri*	shorebird	SSC
FO TE Forster's tern	2	AG/BUTTE/MARSH *Sterna forsteri*	shorebird	SSC
RB GU ring-billed gull	2	 *Larus delawarensis*	shorebird	NL
TERN tern	1	AG/BUTTE/MARSH *Sterna spp.*	shorebird	NL
TERN tern	2	AG/BUTTE/MARSH *Sterna spp.*	shorebird	NL
	22	- **Total For OBFLY01 and S-N and L**		
Station ID: OBFLY01		**Direction: S-N** **Elevation: M**		
AW PE American white pelican	1	 *Pelecanus erythrorhynchos*	water	NL
CORM cormorant	20	AG/BUTTE/MARSH *Phalacrocorax spp.*	water	NL
DC CO double-crested cormorant	1	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
GULLS gulls	1	 *Larus spp.*	shorebird	NL
GULLS gulls	6	 *Larus spp.*	shorebird	NL

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY01		**Direction: S-N** **Elevation: M**		
GULLS gulls	15	 *Larus spp.*	shorebird	NL
LB CU long-billed curlew	5	AG/BUTTE/MARSH *Numenius americanus*	shorebird	NL
RB GU ring-billed gull	5	 *Larus delawarensis*	shorebird	NL
RB GU ring-billed gull	10	 *Larus delawarensis*	shorebird	NL
	64	**- Total For OBFLY01 and S-N and M**		
Station ID: OBFLY01		**Direction: S-NE** **Elevation: L**		
TERN tern	1	AG/BUTTE/MARSH *Sterna spp.*	shorebird	NL
	1	**- Total For OBFLY01 and S-NE and L**		
Station ID: OBFLY01		**Direction: S-W** **Elevation: L**		
DC CO double-crested cormorant	1	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
	1	**- Total For OBFLY01 and S-W and L**		
Station ID: OBFLY01		**Direction: SW - NE** **Elevation: H**		
CA EG cattle egret	3	AG/BUTTE/MARSH *Bubulcus ibis*	shorebird	NL
	3	**- Total For OBFLY01 and SW - NE and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY01		**Direction: SW - NE** **Elevation: L**		
GR EG great egret	2	AG/BUTTE/MARSH *Casmerodius albus*	shorebird	NL
	2	**- Total For OBFLY01 and SW - NE and L**		
Station ID: OBFLY01		**Direction: SW - NE** **Elevation: M**		
GR EG great egret	1	AG/BUTTE/MARSH *Casmerodius albus*	shorebird	NL
	1	**- Total For OBFLY01 and SW - NE and M**		
Station ID: OBFLY01		**Direction: SW-NE** **Elevation: H**		
RO GO Ross's goose	25	AG/BUTTE/MARSH *Chen rossii*	water	NL
SN GO snow goose	2	AG/BUTTE/MARSH *Chen caerulescens*	shorebird	NL
WF IB white-faced ibis	6	AG/BUTTE/MARSH *Plegadis chihi*	shorebird	SSC
	33	**- Total For OBFLY01 and SW-NE and H**		
Station ID: OBFLY01		**Direction: SW-NE** **Elevation: L**		
DC CO double-crested cormorant	1	 *Phalacrocorax auritus*	water	SSC
	1	**- Total For OBFLY01 and SW-NE and L**		
Station ID: OBFLY01		**Direction: W - E** **Elevation: M**		
CA EG cattle egret	1	AG/BUTTE/MARSH *Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY01 and W - E and M**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code Common Name	No. Observed	Habitat Scientific Name	Bird Type Comments	Status
Station ID: OBFLY01		**Direction: W-E** **Elevation: H**		
CORM cormorant	2	AG/BUTTE/MARSH *Phalacrocorax spp.*	water	NL
GULLS gulls	1	 *Larus spp.*	shorebird	NL
GULLS gulls	3	 *Larus spp.*	shorebird	NL
RB GU ring-billed gull	2	 *Larus delawarensis*	shorebird	NL
	8	**- Total For OBFLY01 and W-E and H**		
Station ID: OBFLY01		**Direction: W-E** **Elevation: L**		
BN ST black-necked stilt	1	AG/BUTTE/MARSH *Himantopus mexicanus*	shorebird	NL
BN ST black-necked stilt	3	AG/BUTTE/MARSH *Himantopus mexicanus*	shorebird	NL
GB HE great blue heron	1	AG/MARSH *Ardea herodias*	shorebird	SENS
GULLS gulls	3	 *Larus spp.*	shorebird	NL
GULLS gulls	4	 *Larus spp.*	shorebird	NL
GULLS gulls	9	 *Larus spp.*	shorebird	NL
GULLS gulls	22	 *Larus spp.*	shorebird	NL
	43	**- Total For OBFLY01 and W-E and L**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY01		**Direction: W-E** **Elevation: M**		
GULLS gulls	1	 *Larus spp.*	shorebird	NL
GULLS gulls	3	 *Larus spp.*	shorebird	NL
GULLS gulls	6	 *Larus spp.*	shorebird	NL
GULLS gulls	7	 *Larus spp.*	shorebird	NL
GULLS gulls	8	 *Larus spp.*	shorebird	NL
GULLS gulls	38	 *Larus spp.*	shorebird	NL
GULLS gulls	45	 *Larus spp.*	shorebird	NL
RB GU ring-billed gull	2	 *Larus delawarensis*	shorebird	NL
	110	**- Total For OBFLY01 and W-E and M**		
Station ID: OBFLY01		**Direction: W-N** **Elevation: M**		
DC CO double-crested cormorant	1	AG/BUTTE/MARSH *Phalacrocorax auritus*	water	SSC
	1	**- Total For OBFLY01 and W-N and M**		
Station ID: OBFLY02		**Direction: E-W** **Elevation: H**		
DC CO double-crested cormorant	1	OW/AG *Phalacrocorax auritus*	water	SSC
	1	**- Total For OBFLY02 and E-W and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY02		**Direction: E-W** **Elevation: L**		
BC NH black crowned night-heron	1	OW/AG *Nycticorax nycticorax*	shorebird	SENS
BN ST black-necked stilt	2	AG/MARSH/DIST *Himantopus mexicanus*	shorebird	NL
SN EG snowy egret	3	OW/AG *Egretta thula*	shorebird	NL
TERN tern	1	OW/AG *Sterna spp.*	shorebird	NL
	7	- Total For OBFLY02 and E-W and L		
Station ID: OBFLY02		**Direction: E-W** **Elevation: M**		
BL TE black tern	10	AG/MARSH/DIST *Chlidonias niger*	shorebird	NL
CA EG cattle egret	2	AG/MARSH/DIST *Bubulcus ibis*	shorebird	NL
	12	- Total For OBFLY02 and E-W and M		
Station ID: OBFLY02		**Direction: N-S** **Elevation: L**		
DC CO double-crested cormorant	2	OW/AG *Phalacrocorax auritus*	water	SSC
FO TE Forster's tern	1	OW/AG *Sterna forsteri*	shorebird	SSC
GR EG great egret	1	OW/AG *Casmerodius albus*	shorebird	NL
KILL killdeer	2	AG/MARSH/DIST *Charadrius vociferus*	shorebird	NL
	6	- Total For OBFLY02 and N-S and L		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY02		**Direction: N-S** **Elevation: M**		
BN ST black-necked stilt	1	AG/MARSH/DIST *Himantopus mexicanus*	shorebird	NL
GR EG great egret	1	 *Casmerodius albus*	shorebird	NL
GULLS gulls	1	 *Larus spp.*	shorebird	NL
	3	**- Total For OBFLY02 and N-S and M**		
Station ID: OBFLY02		**Direction: NE-SW** **Elevation: H**		
SN GO snow goose	6	OW/AG *Chen caerulescens*	shorebird	NL
	6	**- Total For OBFLY02 and NE-SW and H**		
Station ID: OBFLY02		**Direction: NE-SW** **Elevation: L**		
CA EG cattle egret	2	AG/MARSH/DIST *Bubulcus ibis*	shorebird	NL
	2	**- Total For OBFLY02 and NE-SW and L**		
Station ID: OBFLY02		**Direction: NW-SE** **Elevation: H**		
BL TE black tern	1	AG/MARSH/DIST *Chlidonias niger*	shorebird	NL
	1	**- Total For OBFLY02 and NW-SE and H**		
Station ID: OBFLY02		**Direction: NW-SE** **Elevation: L**		
GULLS gulls	1	 *Larus spp.*	shorebird	NL
LB CU long-billed curlew	2	AG/MARSH/DIST *Numenius americanus*	shorebird	NL

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
	3	- Total For OBFLY02 and NW-SE and L		
Station ID: OBFLY02		**Direction: S-N** **Elevation: L**		
CA EG cattle egret	2	AG/MARSH/DIST *Bubulcus ibis*	shorebird	NL
GULLS gulls	1	 *Larus spp.*	shorebird	NL
	3	- Total For OBFLY02 and S-N and L		
Station ID: OBFLY02		**Direction: S-N** **Elevation: M**		
KILL killdeer	2	AG/MARSH/DIST *Charadrius vociferus*	shorebird	NL
	2	- Total For OBFLY02 and S-N and M		
Station ID: OBFLY02		**Direction: SE-NW** **Elevation: H**		
GR EG great egret	1	AG/MARSH/DIST *Casmerodius albus*	shorebird	NL
	1	- Total For OBFLY02 and SE-NW and H		
Station ID: OBFLY02		**Direction: SW-NE** **Elevation: L**		
BL TE black tern	1	AG/MARSH/DIST *Chlidonias niger*	shorebird	NL
LB CU long-billed curlew	1	AG/MARSH/DIST *Numenius americanus*	shorebird	NL
	2	- Total For OBFLY02 and SW-NE and L		
Station ID: OBFLY02		**Direction: SW-NE** **Elevation: M**		
GULLS gulls	1	 *Larus spp.*	shorebird	NL
	1	- Total For OBFLY02 and SW-NE and M		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY02		**Direction: W-E** **Elevation:**		
GULLS	5		shorebird	NL
gulls		*Larus spp.*		
OSPRE	1	OW/AG	raptor	SSC
osprey		*Pandion haliaetus*		
	6	**- Total For OBFLY02 and W-E and**		
Station ID: OBFLY02		**Direction: W-E** **Elevation: H**		
WF IB	1	AG/MARSH/DIST	shorebird	SSC
white-faced ibis		*Plegadis chihi*		
	1	**- Total For OBFLY02 and W-E and H**		
Station ID: OBFLY02		**Direction: W-E** **Elevation: L**		
AW PE	2	OW/AG	water	NL
American white pelican		*Pelecanus erythrorhynchos*		
WF IB	35	AG/MARSH/DIST	shorebird	SSC
white-faced ibis		*Plegadis chihi*		
	37	**- Total For OBFLY02 and W-E and L**		
Station ID: OBFLY02		**Direction: W-E** **Elevation: M**		
GULLS	2		shorebird	NL
gulls		*Larus spp.*		
GULLS	3		shorebird	NL
gulls		*Larus spp.*		
GULLS	12		shorebird	NL
gulls		*Larus spp.*		
	17	**- Total For OBFLY02 and W-E and M**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY03		**Direction: E-W** **Elevation: H**		
DC CO double-crested cormorant	1	OW/AG *Phalacrocorax auritus*	water	SSC
	1	**- Total For OBFLY03 and E-W and H**		
Station ID: OBFLY03		**Direction: E-W** **Elevation: L**		
BN ST black-necked stilt	1	AG/NEW RIVER XING *Himantopus mexicanus*	shorebird	NL
FO TE Forster's tern	2	AG/NEW RIVER XING *Sterna forsteri*	shorebird	SSC
	3	**- Total For OBFLY03 and E-W and L**		
Station ID: OBFLY03		**Direction: N - S** **Elevation: H**		
CA EG cattle egret	2	AG/NEW RIVER CROSSING *Bubulcus ibis*	shorebird	NL
	2	**- Total For OBFLY03 and N - S and H**		
Station ID: OBFLY03		**Direction: N - S** **Elevation: L**		
NO HA northern harrier	1	AG/NEW RIVER CROSSING *Circus cyaneus*	raptor	SSC
	1	**- Total For OBFLY03 and N - S and L**		
Station ID: OBFLY03		**Direction: N-S** **Elevation: H**		
CA EG cattle egret	1	AG/NEW RIVER XING *Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY03 and N-S and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY03		**Direction: N-S** **Elevation: L**		
AM KE American kestrel	1	AG *Falco sparverius*	raptor	NL
CA EG cattle egret	2	AG *Bubulcus ibis*	shorebird	NL
GULLS gulls	1	 *Larus spp.*	shorebird	NL
NO HA northern harrier	2	AG *Circus cyaneus*	raptor	SSC
SN EG snowy egret	1	OW/AG *Egretta thula*	shorebird	NL
	7	**- Total For OBFLY03 and N-S and L**		
Station ID: OBFLY03		**Direction: N-S** **Elevation: M**		
GR EG great egret	2	 *Casmerodius albus*	shorebird	NL
GULLS gulls	1	 *Larus spp.*	shorebird	NL
	3	**- Total For OBFLY03 and N-S and M**		
Station ID: OBFLY03		**Direction: NE-SW** **Elevation: H**		
CORM cormorant	1	AG/NEW RIVER XING *Phalacrocorax spp.*	water	NL
	1	**- Total For OBFLY03 and NE-SW and H**		
Station ID: OBFLY03		**Direction: NONE** **Elevation:**		
NONE none	0	AG/NEW RIVER XING *none*	none	NONE
	0	**- Total For OBFLY03 and NONE and**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY03		**Direction: NW-SE** **Elevation: L**		
CA EG cattle egret	1	AG/NEW RIVER CROSSING *Bubulcus ibis*	shorebird	NL
CA EG cattle egret	3	AG/NEW RIVER CROSSING *Bubulcus ibis*	shorebird	NL
CA EG cattle egret	20	AG/NEW RIVER CROSSING *Bubulcus ibis*	shorebird	NL
CA EG cattle egret	55	AG/NEW RIVER CROSSING *Bubulcus ibis*	shorebird	NL
	79	**- Total For OBFLY03 and NW-SE and L**		
Station ID: OBFLY03		**Direction: S - N** **Elevation: H**		
LB CU long-billed curlew	2	AG/NEW RIVER CROSSING *Numenius americanus*	shorebird	NL
	2	**- Total For OBFLY03 and S - N and H**		
Station ID: OBFLY03		**Direction: S-N** **Elevation: H**		
GULLS gulls	1	 *Larus spp.*	shorebird	NL
	1	**- Total For OBFLY03 and S-N and H**		
Station ID: OBFLY03		**Direction: S-N** **Elevation: M**		
GULLS gulls	1	 *Larus spp.*	shorebird	NL
	1	**- Total For OBFLY03 and S-N and M**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY03		**Direction: SE-NW** **Elevation: H**		
CA EG cattle egret	4	AG/NEW RIVER XING *Bubulcus ibis*	shorebird	NL
	4	**- Total For OBFLY03 and SE-NW and H**		
Station ID: OBFLY03		**Direction: SE-NW** **Elevation: M**		
WF IB white-faced ibis	1	AG/NEW RIVER CROSSING *Plegadis chihi*	shorebird	SSC
	1	**- Total For OBFLY03 and SE-NW and M**		
Station ID: OBFLY03		**Direction: W - E** **Elevation: H**		
BR PE brown pelican	8	AG/NEW RIVER CROSSING *Pelecanus occidentalis*	water	ENDANG
	8	**- Total For OBFLY03 and W - E and H**		
Station ID: OBFLY03		**Direction: W - E** **Elevation: L**		
KILL killdeer	1	AG/NEW RIVER CROSSING *Charadrius vociferus*	shorebird	NL
	1	**- Total For OBFLY03 and W - E and L**		
Station ID: OBFLY03		**Direction: W-E** **Elevation: H**		
BN ST black-necked stilt	1	AG/NEW RIVER XING *Himantopus mexicanus*	shorebird	NL
CA EG cattle egret	8	AG/NEW RIVER XING *Bubulcus ibis*	shorebird	NL
SN EG snowy egret	2	AG/NEW RIVER XING *Egretta thula*	shorebird	NL
SN EG snowy egret	14	AG/NEW RIVER XING *Egretta thula*	shorebird	NL

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
	25	**- Total For OBFLY03 and W-E and H**		
Station ID: OBFLY03		**Direction: W-E** **Elevation: L**		
CA EG cattle egret	8	AG/NEW RIVER CROSSING *Bubulcus ibis*	shorebird	NL
GR HE green heron	1	AG/NEW RIVER XING *Butorides virescens*	shorebird	NL
GR HE green heron	2	AG/NEW RIVER XING *Butorides virescens*	shorebird	NL
GULLS gulls	2	 *Larus spp.*	shorebird	NL
	13	**- Total For OBFLY03 and W-E and L**		
Station ID: OBFLY03		**Direction: W-E** **Elevation: M**		
BN ST black-necked stilt	2	AG/NEW RIVER XING *Himantopus mexicanus*	shorebird	NL
DC CO double-crested cormorant	2	 *Phalacrocorax auritus*	water	SSC
GULLS gulls	1	 *Larus spp.*	shorebird	NL
SN EG snowy egret	1	AG/NEW RIVER XING *Egretta thula*	shorebird	NL
	6	**- Total For OBFLY03 and W-E and M**		
Station ID: OBFLY04		**Direction: Elevation:**		
NONE none	0	AG/BANNISTER RD *none*	none	NONE
NONE none	0	AG/BANNISTER RD *none*	none	NONE

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY04		**Direction:** **Elevation:**		
NONE none	0	AG/BANNISTER RD *none*	none	NONE
	0	**- Total For OBFLY04 and and**		
Station ID: OBFLY04		**Direction: E - W** **Elevation: H**		
CA EG cattle egret	40	AG/BANNISTER *Bubulcus ibis*	shorebird	NL
	40	**- Total For OBFLY04 and E - W and H**		
Station ID: OBFLY04		**Direction: E - W** **Elevation: M**		
CA EG cattle egret	1	AG/BANNISTER *Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY04 and E - W and M**		
Station ID: OBFLY04		**Direction: E-W** **Elevation: H**		
LB CU long-billed curlew	1	AG/BANNISTER RD *Numenius americanus*	shorebird	NL
	1	**- Total For OBFLY04 and E-W and H**		
Station ID: OBFLY04		**Direction: E-W** **Elevation: L**		
NO HA northern harrier	1	AG/BANNISTER RD *Circus cyaneus*	raptor	SSC
	1	**- Total For OBFLY04 and E-W and L**		
Station ID: OBFLY04		**Direction: E-W** **Elevation: M**		
LB CU long-billed curlew	6	AG/BANNISTER *Numenius americanus*	shorebird	NL

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY04		**Direction: E-W** **Elevation: M**		
WF IB white-faced ibis	1	AG/BANNISTER RD *Plegadis chihi*	shorebird	SSC
	7	**- Total For OBFLY04 and E-W and M**		
Station ID: OBFLY04		**Direction: N - S** **Elevation: H**		
CA EG cattle egret	18	AG/BANNISTER *Bubulcus ibis*	shorebird	NL
	18	**- Total For OBFLY04 and N - S and H**		
Station ID: OBFLY04		**Direction: N-S** **Elevation: H**		
CA EG cattle egret	1	AG/BANNISTER RD *Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY04 and N-S and H**		
Station ID: OBFLY04		**Direction: N-S** **Elevation: L**		
GB HE great blue heron	1	AG/BANNISTER RD *Ardea herodias*	shorebird	SENS
GR HE green heron	1	AG/BANNISTER RD *Butorides virescens*	shorebird	NL
SN EG snowy egret	1	AG/BANNISTER RD *Egretta thula*	shorebird	NL
	3	**- Total For OBFLY04 and N-S and L**		
Station ID: OBFLY04		**Direction: NE-SW** **Elevation: M**		
LB CU long-billed curlew	9	AG/BANNISTER *Numenius americanus*	shorebird	NL
	9	**- Total For OBFLY04 and NE-SW and M**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY04		**Direction: S-N** **Elevation: H**		
GULLS gulls	1	 *Larus spp.*	shorebird	NL
GULLS gulls	5	 *Larus spp.*	shorebird	NL
LB CU long-billed curlew	15	AG/BANNISTER *Numenius americanus*	shorebird	NL
	21	**- Total For OBFLY04 and S-N and H**		
Station ID: OBFLY04		**Direction: S-N** **Elevation: L**		
CA EG cattle egret	3	AG/BANNISTER RD *Bubulcus ibis*	shorebird	NL
GR HE green heron	1	AG/BANNISTER RD *Butorides virescens*	shorebird	NL
	4	**- Total For OBFLY04 and S-N and L**		
Station ID: OBFLY04		**Direction: W - E** **Elevation: M**		
KILL killdeer	3	AG/BANNISTER *Charadrius vociferus*	shorebird	NL
	3	**- Total For OBFLY04 and W - E and M**		
Station ID: OBFLY04		**Direction: W-E** **Elevation: L**		
CA EG cattle egret	5	AG/BANNISTER *Bubulcus ibis*	shorebird	NL
	5	**- Total For OBFLY04 and W-E and L**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY04		**Direction: W-E** **Elevation: M**		
GULLS gulls	1	 *Larus spp.*	shorebird	NL
	1	**- Total For OBFLY04 and W-E and M**		
Station ID: OBFLY05		**Direction:** **Elevation:**		
NONE none	0	DESERT SCRUB/HWY/CANAL *none*	none	NONE
NONE none	0	DESERT SCRUB/HWY/CANAL *none*	none	NONE
NONE none	0	DESERT SCRUB/HWY/CANAL *none*	none	NONE
	0	**- Total For OBFLY05 and and**		
Station ID: OBFLY05		**Direction: E-W** **Elevation: L**		
RW BL red-winged blackbird	8	DESERT SCRUB/HWY/CANAL *Agelaius phoeniceus*	passerine	NL
	8	**- Total For OBFLY05 and E-W and L**		
Station ID: OBFLY05		**Direction: N-S** **Elevation: L**		
RW BL red-winged blackbird	20	DESERT SCRUB/HWY/CANAL *Agelaius phoeniceus*	passerine	NL
	20	**- Total For OBFLY05 and N-S and L**		
Station ID: OBFLY05		**Direction: N/A** **Elevation: N/A**		
NONE none	0	 *none*	none	NONE
	0	**- Total For OBFLY05 and N/A and N/A**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY05		**Direction: NW-SE** **Elevation: M**		
DC CO double-crested cormorant	4	DESERT SCRUB/AG/HWY/CANAL *Phalacrocorax auritus*	water	SSC
	4	**- Total For OBFLY05 and NW-SE and M**		
Station ID: OBFLY05		**Direction: S-N** **Elevation: H**		
TU VU turkey vulture	1	DESERT SCRUB/HWY/CANAL *Cathartes aura*	raptor	NL
	1	**- Total For OBFLY05 and S-N and H**		
Station ID: OBFLY05		**Direction: S-N** **Elevation: M**		
RW BL red-winged blackbird	6	DESERT SCRUB/HWY/CANAL *Agelaius phoeniceus*	passerine	NL
	6	**- Total For OBFLY05 and S-N and M**		
Station ID: OBFLY05		**Direction: SE-NW** **Elevation: L**		
DC CO double-crested cormorant	1	DESERT SCRUB/AG/HWY/CANAL *Phalacrocorax auritus*	water	SSC
	1	**- Total For OBFLY05 and SE-NW and L**		
Station ID: OBFLY05		**Direction: SE-NW** **Elevation: M**		
DC CO double-crested cormorant	1	DESERT SCRUB/AG/HWY/CANAL *Phalacrocorax auritus*	water	SSC
	1	**- Total For OBFLY05 and SE-NW and M**		
Station ID: OBFLY06		**Direction: N - S** **Elevation: M**		
CA EG cattle egret	1	AG/EXISTING POWER PLANT *Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY06 and N - S and M**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY06		**Direction: N-S** **Elevation: H**		
BR PE brown pelican	12	 *Pelecanus occidentalis*	water	ENDANG
GULLS gulls	1	 *Larus spp.*	shorebird	NL
SN GO snow goose	50	AG/EXISTING POWER PLANT *Chen caerulescens*	shorebird	NL
	63	**- Total For OBFLY06 and N-S and H**		
Station ID: OBFLY06		**Direction: N-S** **Elevation: L**		
SN EG snowy egret	1	AG/EXISTING POWER PLANT *Egretta thula*	shorebird	NL
	1	**- Total For OBFLY06 and N-S and L**		
Station ID: OBFLY06		**Direction: NW-SE** **Elevation: H**		
GULLS gulls	4	 *Larus spp.*	shorebird	NL
	4	**- Total For OBFLY06 and NW-SE and H**		
Station ID: OBFLY06		**Direction: S-N** **Elevation: M**		
LB CU long-billed curlew	2	 *Numenius americanus*	shorebird	NL
	2	**- Total For OBFLY06 and S-N and M**		
Station ID: OBFLY06		**Direction: W-E** **Elevation: H**		
GULLS gulls	8	 *Larus spp.*	shorebird	NL
GULLS gulls	24	 *Larus spp.*	shorebird	NL

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY06		**Direction: W-E** **Elevation: H**		
TERN tern	2	AG/EXISTING POWER PLANT *Sterna spp.*	shorebird	NL
	34	**- Total For OBFLY06 and W-E and H**		
Station ID: OBFLY06		**Direction: W-E** **Elevation: L**		
GULLS gulls	1	 *Larus spp.*	shorebird	NL
	1	**- Total For OBFLY06 and W-E and L**		
Station ID: OBFLY06		**Direction: W-E** **Elevation: M**		
GULLS gulls	34	 *Larus spp.*	shorebird	NL
GULLS gulls	60	 *Larus spp.*	shorebird	NL
	94	**- Total For OBFLY06 and W-E and M**		
Station ID: OBFLY07		**Direction: Elevation:**		
NONE none		HWY/DESERT SCRUB/WASH *none*	none	NONE
	0	**- Total For OBFLY07 and and**		
Station ID: OBFLY07		**Direction: N/A** **Elevation: N/A**		
NONE none	0	 *none*	none	NONE
	0	**- Total For OBFLY07 and N/A and N/A**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY07		**Direction: NW-SE** **Elevation: H**		
SN GO snow goose	10	HWY/DESERT SCRUB/WASH *Chen caerulescens*	shorebird	NL
	10	**- Total For OBFLY07 and NW-SE and H**		
Station ID: OBFLY07		**Direction: NW-SE** **Elevation: M**		
DC CO double-crested cormorant	1	HWY/DESERT SCRUB/WASH *Phalacrocorax auritus*	water	SSC
	1	**- Total For OBFLY07 and NW-SE and M**		
Station ID: OBFLY08		**Direction: E-W** **Elevation: H**		
GULLS gulls	1	 *Larus spp.*	shorebird	NL
	1	**- Total For OBFLY08 and E-W and H**		
Station ID: OBFLY08		**Direction: E-W** **Elevation: L**		
CA EG cattle egret	1	 *Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY08 and E-W and L**		
Station ID: OBFLY08		**Direction: E-W** **Elevation: M**		
GULLS gulls	1	 *Larus spp.*	shorebird	NL
	1	**- Total For OBFLY08 and E-W and M**		
Station ID: OBFLY08		**Direction: N-S** **Elevation: H**		
CA EG cattle egret	2	 *Bubulcus ibis*	shorebird	NL

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY08		**Direction: N-S** **Elevation: H**		
GULLS	4		shorebird	NL
gulls		*Larus spp.*		
	6	**- Total For OBFLY08 and N-S and H**		
Station ID: OBFLY08		**Direction: N-S** **Elevation: L**		
BN ST	3		shorebird	NL
black-necked stilt		*Himantopus mexicanus*		
CA EG	72	AG	shorebird	NL
cattle egret		*Bubulcus ibis*		
DUCKS	1		water	NL
ducks		*Anas spp., Aythya spp.*		
	76	**- Total For OBFLY08 and N-S and L**		
Station ID: OBFLY08		**Direction: N-S** **Elevation: M**		
BN ST	1		shorebird	NL
black-necked stilt		*Himantopus mexicanus*		
CA EG	15	AG	shorebird	NL
cattle egret		*Bubulcus ibis*		
	16	**- Total For OBFLY08 and N-S and M**		
Station ID: OBFLY08		**Direction: N/A** **Elevation: N/A**		
NONE	0		none	NONE
none		*none*		
	0	**- Total For OBFLY08 and N/A and N/A**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY08		**Direction: NE-SW** **Elevation: H**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY08 and NE-SW and H**		
Station ID: OBFLY08		**Direction: NW-SE** **Elevation: H**		
GULLS gulls	11	*Larus spp.*	shorebird	NL
	11	**- Total For OBFLY08 and NW-SE and H**		
Station ID: OBFLY08		**Direction: NW-SE** **Elevation: L**		
GULLS gulls	2	*Larus spp.*	shorebird	NL
	2	**- Total For OBFLY08 and NW-SE and L**		
Station ID: OBFLY08		**Direction: S-N** **Elevation: H**		
CA EG cattle egret	4	*Bubulcus ibis*	shorebird	NL
	4	**- Total For OBFLY08 and S-N and H**		
Station ID: OBFLY08		**Direction: S-N** **Elevation: L**		
BN ST black-necked stilt	1	*Himantopus mexicanus*	shorebird	NL
DUCKS ducks	2	*Anas spp., Aythya spp.*	water	NL
	3	**- Total For OBFLY08 and S-N and L**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY08		**Direction: S-N** **Elevation: M**		
BN ST black-necked stilt	1	*Himantopus mexicanus*	shorebird	NL
BN ST black-necked stilt	1	*Himantopus mexicanus*	shorebird	NL
GR EG great egret	1	*Casmerodius albus*	shorebird	NL
	3	**- Total For OBFLY08 and S-N and M**		
Station ID: OBFLY08		**Direction: SE-NW** **Elevation: ?**		
CA EG cattle egret	2	*Bubulcus ibis*	shorebird	NL
GULLS gulls	2	*Larus spp.*	shorebird	NL
	4	**- Total For OBFLY08 and SE-NW and ?**		
Station ID: OBFLY08		**Direction: SE-NW** **Elevation: M**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
GULLS gulls	1	*Larus spp.*	shorebird	NL
	2	**- Total For OBFLY08 and SE-NW and M**		
Station ID: OBFLY08		**Direction: SW-NE** **Elevation: H**		
GULLS gulls	3	*Larus spp.*	shorebird	NL
	3	**- Total For OBFLY08 and SW-NE and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY08		**Direction: W-E** **Elevation: H**		
BC NH black crowned night-heron	1	 *Nycticorax nycticorax*	shorebird	SENS
SN EG snowy egret	1	 *Egretta thula*	shorebird	NL
	2	**- Total For OBFLY08 and W-E and H**		
Station ID: OBFLY08		**Direction: W-E** **Elevation: M**		
CA EG cattle egret	2	 *Bubulcus ibis*	shorebird	NL
	2	**- Total For OBFLY08 and W-E and M**		
Station ID: OBFLY09		**Direction:** **Elevation:**		
NONE none		AG *none*	none	NONE
	0	**- Total For OBFLY09 and and**		
Station ID: OBFLY09		**Direction: E-W** **Elevation: L**		
GULLS gulls	2	 *Larus spp.*	shorebird	NL
	2	**- Total For OBFLY09 and E-W and L**		
Station ID: OBFLY09		**Direction: E-W** **Elevation: M**		
GULLS gulls	1	 *Larus spp.*	shorebird	NL
	1	**- Total For OBFLY09 and E-W and M**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY09		**Direction: N-S** **Elevation: H**		
SN GO snow goose	30	AG *Chen caerulescens*	shorebird	NL
	30	**- Total For OBFLY09 and N-S and H**		
Station ID: OBFLY09		**Direction: N-S** **Elevation: M**		
GULLS gulls	4	 *Larus spp.*	shorebird	NL
	4	**- Total For OBFLY09 and N-S and M**		
Station ID: OBFLY09		**Direction: NW-SE** **Elevation: H**		
GULLS gulls	65	 *Larus spp.*	shorebird	NL
	65	**- Total For OBFLY09 and NW-SE and H**		
Station ID: OBFLY09		**Direction: NW-SE** **Elevation: L**		
GULLS gulls	13	 *Larus spp.*	shorebird	NL
	13	**- Total For OBFLY09 and NW-SE and L**		
Station ID: OBFLY09		**Direction: NW-SE** **Elevation: M**		
GULLS gulls	195	 *Larus spp.*	shorebird	NL
	195	**- Total For OBFLY09 and NW-SE and M**		
Station ID: OBFLY09		**Direction: SE-NW** **Elevation: H**		
CORM cormorant	1	 *Phalacrocorax spp.*	water	NL
	1	**- Total For OBFLY09 and SE-NW and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY09		**Direction: W - E** **Elevation: H**		
CA EG cattle egret	3	AG *Bubulcus ibis*	shorebird	NL
	3	**- Total For OBFLY09 and W - E and H**		
Station ID: OBFLY09		**Direction: W-E** **Elevation: M**		
SN GO snow goose	6	 *Chen caerulescens*	shorebird	NL
	6	**- Total For OBFLY09 and W-E and M**		
Station ID: OBFLY10		**Direction: E-W** **Elevation: H**		
CA EG cattle egret	3	AG *Bubulcus ibis*	shorebird	NL
GULLS gulls	10	 *Larus spp.*	shorebird	NL
	13	**- Total For OBFLY10 and E-W and H**		
Station ID: OBFLY10		**Direction: E-W** **Elevation: L**		
CA EG cattle egret	1	 *Bubulcus ibis*	shorebird	NL
CA EG cattle egret	1	 *Bubulcus ibis*	shorebird	NL
DC CO double-crested cormorant	2	AG *Phalacrocorax auritus*	water	SSC
GULLS gulls	5	 *Larus spp.*	shorebird	NL
SN EG snowy egret	1	 *Egretta thula*	shorebird	NL
	10	**- Total For OBFLY10 and E-W and L**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY10		**Direction: E-W** **Elevation: M**		
GR EG great egret	2	AG *Casmerodius albus*	shorebird	NL
GULLS gulls	45	 *Larus spp.*	shorebird	NL
	47	**- Total For OBFLY10 and E-W and M**		
Station ID: OBFLY10		**Direction: N-S** **Elevation: H**		
AW PE American white pelican	17	 *Pelecanus erythrorhynchos*	water	NL
	17	**- Total For OBFLY10 and N-S and H**		
Station ID: OBFLY10		**Direction: N-S** **Elevation: L**		
CA EG cattle egret	1	AG *Bubulcus ibis*	shorebird	NL
LB CU long-billed curlew	3	 *Numenius americanus*	shorebird	NL
	4	**- Total For OBFLY10 and N-S and L**		
Station ID: OBFLY10		**Direction: N-S** **Elevation: M**		
CA EG cattle egret	1	AG *Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY10 and N-S and M**		
Station ID: OBFLY10		**Direction: NE - SW** **Elevation: M**		
DC CO double-crested cormorant	1	AG *Phalacrocorax auritus*	water	SSC
FO TE Forster's tern	4	AG *Sterna forsteri*	shorebird	SSC

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
	5	**- Total For OBFLY10 and NE - SW and M**		
Station ID: OBFLY10		**Direction: NE-SW** **Elevation: H**		
CA EG cattle egret	1	 *Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY10 and NE-SW and H**		
Station ID: OBFLY10		**Direction: NE-SW** **Elevation: L**		
WF IB white-faced ibis	20	 *Plegadis chihi*	shorebird	SSC
	20	**- Total For OBFLY10 and NE-SW and L**		
Station ID: OBFLY10		**Direction: NE-SW** **Elevation: M**		
CA EG cattle egret	1	 *Bubulcus ibis*	shorebird	NL
WF IB white-faced ibis	41	 *Plegadis chihi*	shorebird	SSC
	42	**- Total For OBFLY10 and NE-SW and M**		
Station ID: OBFLY10		**Direction: NW-SE** **Elevation: H**		
LB CU long-billed curlew	15	AG *Numenius americanus*	shorebird	NL
LB CU long-billed curlew	60	AG *Numenius americanus*	shorebird	NL
MA GO marbled godwit	12	AG *Limosa fedoa*	shorebird	NL
	87	**- Total For OBFLY10 and NW-SE and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY10	**Direction: NW-SE**	**Elevation: M**		
GULLS	1		shorebird	NL
gulls		*Larus spp.*		
	1	**- Total For OBFLY10 and NW-SE and M**		
Station ID: OBFLY10	**Direction: S-N**	**Elevation: L**		
CA EG	1		shorebird	NL
cattle egret		*Bubulcus ibis*		
FO TE	2	AG	shorebird	SSC
Forster's tern		*Sterna forsteri*		
SAND	4	AG	shorebird	NL
sandpipers		*Tringa spp.*		
	7	**- Total For OBFLY10 and S-N and L**		
Station ID: OBFLY10	**Direction: S-N**	**Elevation: M**		
CA EG	1		shorebird	NL
cattle egret		*Bubulcus ibis*		
GULLS	1		shorebird	NL
gulls		*Larus spp.*		
	2	**- Total For OBFLY10 and S-N and M**		
Station ID: OBFLY10	**Direction: SE-NW**	**Elevation: H**		
CA EG	2		shorebird	NL
cattle egret		*Bubulcus ibis*		
GULLS	1		shorebird	NL
gulls		*Larus spp.*		
	3	**- Total For OBFLY10 and SE-NW and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY10	**Direction: SE-NW**	**Elevation: L**		
GULLS	5		shorebird	NL
gulls		*Larus spp.*		
KILL	1		shorebird	NL
killdeer		*Charadrius vociferus*		
	6	**- Total For OBFLY10 and SE-NW and L**		
Station ID: OBFLY10	**Direction: SE-NW**	**Elevation: M**		
GULLS	5		shorebird	NL
gulls		*Larus spp.*		
LB DO	1	AG	shorebird	NL
long-billed dowitcher		*Limnodromus scolopaceus*		
	6	**- Total For OBFLY10 and SE-NW and M**		
Station ID: OBFLY10	**Direction: SW-NE**	**Elevation: H**		
CA EG	2		shorebird	NL
cattle egret		*Bubulcus ibis*		
LB CU	1		shorebird	NL
long-billed curlew		*Numenius americanus*		
	3	**- Total For OBFLY10 and SW-NE and H**		
Station ID: OBFLY10	**Direction: W-E**	**Elevation: H**		
CA EG	8	AG	shorebird	NL
cattle egret		*Bubulcus ibis*		
	8	**- Total For OBFLY10 and W-E and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY10		**Direction: W-E** **Elevation: L**		
DC CO double-crested cormorant	2	AG *Phalacrocorax auritus*	water	SSC
GULLS gulls	1	 *Larus spp.*	shorebird	NL
WF IB white-faced ibis	1	AG *Plegadis chihi*	shorebird	SSC
	4	**- Total For OBFLY10 and W-E and L**		
Station ID: OBFLY10		**Direction: W-E** **Elevation: M**		
CA EG cattle egret	6	AG *Bubulcus ibis*	shorebird	NL
	6	**- Total For OBFLY10 and W-E and M**		
Station ID: OBFLY11		**Direction:** **Elevation:**		
NONE none		HWY/DESERT SCRUB/ *none*	none	NONE
	0	**- Total For OBFLY11 and and**		
Station ID: OBFLY11		**Direction: N/A** **Elevation: N/A**		
NONE none	0	 *none*	none	NONE
	0	**- Total For OBFLY11 and N/A and N/A**		
Station ID: OBFLY12		**Direction:** **Elevation:**		
NONE none		AG *none*	none	NONE
	0	**- Total For OBFLY12 and and**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY12		**Direction: N/A** **Elevation: N/A**		
NONE none	0	*none*	none	NONE
	0	**- Total For OBFLY12 and N/A and N/A**		
Station ID: OBFLY13		**Direction: E-W** **Elevation: L**		
GR EG great egret	2	AG *Casmerodius albus*	shorebird	NL
GULLS gulls	3	 *Larus spp.*	shorebird	NL
SN EG snowy egret	1	 *Egretta thula*	shorebird	NL
	6	**- Total For OBFLY13 and E-W and L**		
Station ID: OBFLY13		**Direction: N-S** **Elevation: H**		
CA EG cattle egret	2	 *Bubulcus ibis*	shorebird	NL
	2	**- Total For OBFLY13 and N-S and H**		
Station ID: OBFLY13		**Direction: N-S** **Elevation: L**		
CA EG cattle egret	1	 *Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY13 and N-S and L**		
Station ID: OBFLY13		**Direction: N-S** **Elevation: M**		
CA EG cattle egret	1	 *Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY13 and N-S and M**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY13		**Direction: N/A** **Elevation: N/A**		
NONE	0		none	NONE
none		*none*		
	0	**- Total For OBFLY13 and N/A and N/A**		
Station ID: OBFLY13		**Direction: NE-SW** **Elevation: L**		
GR EG	1		shorebird	NL
great egret		*Casmerodius albus*		
	1	**- Total For OBFLY13 and NE-SW and L**		
Station ID: OBFLY13		**Direction: NW-SE** **Elevation: L**		
WF IB	2		shorebird	SSC
white-faced ibis		*Plegadis chihi*		
	2	**- Total For OBFLY13 and NW-SE and L**		
Station ID: OBFLY13		**Direction: S** **Elevation: H**		
CA EG	3		shorebird	NL
cattle egret		*Bubulcus ibis*		
	3	**- Total For OBFLY13 and S and H**		
Station ID: OBFLY13		**Direction: S-N** **Elevation: H**		
CA EG	1		shorebird	NL
cattle egret		*Bubulcus ibis*		
	1	**- Total For OBFLY13 and S-N and H**		
Station ID: OBFLY13		**Direction: S-N** **Elevation: M**		
CA EG	2		shorebird	NL
cattle egret		*Bubulcus ibis*		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY13		**Direction: S-N** **Elevation: M**		
SN EG snowy egret	1	 *Egretta thula*	shorebird	NL
SN EG snowy egret	4	AG *Egretta thula*	shorebird	NL
	7	**- Total For OBFLY13 and S-N and M**		
Station ID: OBFLY13		**Direction: SE-NW** **Elevation: H**		
CA EG cattle egret	5	 *Bubulcus ibis*	shorebird	NL
CA EG cattle egret	5	 *Bubulcus ibis*	shorebird	NL
	10	**- Total For OBFLY13 and SE-NW and H**		
Station ID: OBFLY13		**Direction: SE-NW** **Elevation: L**		
LB CU long-billed curlew	15	 *Numenius americanus*	shorebird	NL
WF IB white-faced ibis	7	AG *Plegadis chihi*	shorebird	SSC
	22	**- Total For OBFLY13 and SE-NW and L**		
Station ID: OBFLY13		**Direction: SE-NW** **Elevation: M**		
CA EG cattle egret	1	 *Bubulcus ibis*	shorebird	NL
LB CU long-billed curlew	1	 *Numenius americanus*	shorebird	NL
LB CU long-billed curlew	2	AG *Numenius americanus*	shorebird	NL
	4	**- Total For OBFLY13 and SE-NW and M**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY13		**Direction: W-E**	**Elevation: H**	
GULLS	10		shorebird	NL
gulls		*Larus spp.*		
	10	**- Total For OBFLY13 and W-E and H**		
Station ID: OBFLY13		**Direction: W-E**	**Elevation: L**	
CA EG	2		shorebird	NL
cattle egret		*Bubulcus ibis*		
SN EG	1		shorebird	NL
snowy egret		*Egretta thula*		
	3	**- Total For OBFLY13 and W-E and L**		
Station ID: OBFLY13		**Direction: W-E**	**Elevation: M**	
BC NH	1		shorebird	SENS
black crowned night-heron		*Nycticorax nycticorax*		
CA EG	1		shorebird	NL
cattle egret		*Bubulcus ibis*		
CA EG	1		shorebird	NL
cattle egret		*Bubulcus ibis*		
GULLS	5		shorebird	NL
gulls		*Larus spp.*		
	8	**- Total For OBFLY13 and W-E and M**		
Station ID: OBFLY14		**Direction: E-W**	**Elevation: H**	
CA EG	1		shorebird	NL
cattle egret		*Bubulcus ibis*		
CA EG	2		shorebird	NL
cattle egret		*Bubulcus ibis*		
GULLS	1		shorebird	NL
gulls		*Larus spp.*		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
	4	**- Total For OBFLY14 and E-W and H**		
Station ID: OBFLY14		**Direction: E-W** **Elevation: L**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
SN EG snowy egret	2	*Egretta thula*	shorebird	NL
	3	**- Total For OBFLY14 and E-W and L**		
Station ID: OBFLY14		**Direction: E-W** **Elevation: M**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
	3	**- Total For OBFLY14 and E-W and M**		
Station ID: OBFLY14		**Direction: N-S** **Elevation: H**		
DUCKS ducks	2	*Anas spp., Aythya spp.*	water	NL
GULLS gulls	1	*Larus spp.*	shorebird	NL
WF IB white-faced ibis	5	*Plegadis chihi*	shorebird	SSC
WF IB white-faced ibis	11	*Plegadis chihi*	shorebird	SSC
	19	**- Total For OBFLY14 and N-S and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code Common Name	No. Observed	Habitat Scientific Name	Bird Type Comments	Status
Station ID: OBFLY14	**Direction: N-S**	**Elevation: L**		
BN ST black-necked stilt	6	*Himantopus mexicanus*	shorebird	NL
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	5	*Bubulcus ibis*	shorebird	NL
	15	- Total For OBFLY14 and N-S and L		
Station ID: OBFLY14	**Direction: N-S**	**Elevation: M**		
CA EG cattle egret	2	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	2	*Bubulcus ibis*	shorebird	NL
	4	- Total For OBFLY14 and N-S and M		
Station ID: OBFLY14	**Direction: NE-SW**	**Elevation: H**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
DC CO double-crested cormorant	1	*Phalacrocorax auritus*	water	SSC
DC CO double-crested cormorant	1	AG *Phalacrocorax auritus*	water	SSC

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY14		**Direction: NE-SW** **Elevation: H**		
GULLS gulls	1	 *Larus spp.*	shorebird	NL
	4	**- Total For OBFLY14 and NE-SW and H**		
Station ID: OBFLY14		**Direction: NW-SE** **Elevation: H**		
GULLS gulls	1	 *Larus spp.*	shorebird	NL
	1	**- Total For OBFLY14 and NW-SE and H**		
Station ID: OBFLY14		**Direction: NW-SE** **Elevation: L**		
CA EG cattle egret	5	 *Bubulcus ibis*	shorebird	NL
	5	**- Total For OBFLY14 and NW-SE and L**		
Station ID: OBFLY14		**Direction: NW-SE** **Elevation: M**		
LB CU long-billed curlew	25	AG *Numenius americanus*	shorebird	NL
	25	**- Total For OBFLY14 and NW-SE and M**		
Station ID: OBFLY14		**Direction: S-N** **Elevation: H**		
CA EG cattle egret	2	 *Bubulcus ibis*	shorebird	NL
CA EG cattle egret	3	 *Bubulcus ibis*	shorebird	NL
	5	**- Total For OBFLY14 and S-N and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY14	**Direction: S-N**	**Elevation: L**		
CA EG cattle egret	3	 *Bubulcus ibis*	shorebird	NL
GR EG great egret	1	 *Casmerodius albus*	shorebird	NL
SN EG snowy egret	1	 *Egretta thula*	shorebird	NL
	5	**- Total For OBFLY14 and S-N and L**		
Station ID: OBFLY14	**Direction: SE-NW**	**Elevation: H**		
CA EG cattle egret	2	 *Bubulcus ibis*	shorebird	NL
CA EG cattle egret	11	AG *Bubulcus ibis*	shorebird	NL
GR EG great egret	1	 *Casmerodius albus*	shorebird	NL
LB CU long-billed curlew	1	 *Numenius americanus*	shorebird	NL
	15	**- Total For OBFLY14 and SE-NW and H**		
Station ID: OBFLY14	**Direction: SE-NW**	**Elevation: L**		
CA EG cattle egret	2	 *Bubulcus ibis*	shorebird	NL
GR HE green heron	1	 *Butorides virescens*	shorebird	NL
	3	**- Total For OBFLY14 and SE-NW and L**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY14	**Direction: SE-NW**	**Elevation: M**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
GR EG great egret	2	*Casmerodius albus*	shorebird	NL
	3	**- Total For OBFLY14 and SE-NW and M**		
Station ID: OBFLY14	**Direction: SW-NE**	**Elevation: H**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY14 and SW-NE and H**		
Station ID: OBFLY14	**Direction: SW-NE**	**Elevation: L**		
SN EG snowy egret	1	*Egretta thula*	shorebird	NL
	1	**- Total For OBFLY14 and SW-NE and L**		
Station ID: OBFLY14	**Direction: SW-NE**	**Elevation: M**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
LB CU long-billed curlew	1	*Numenius americanus*	shorebird	NL
	2	**- Total For OBFLY14 and SW-NE and M**		
Station ID: OBFLY14	**Direction: W-E**	**Elevation: L**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY14		**Direction: W-E** **Elevation: L**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
GR EG great egret	1	*Casmerodius albus*	shorebird	NL
SN EG snowy egret	1	*Egretta thula*	shorebird	NL
	5	- Total For OBFLY14 and W-E and L		
Station ID: OBFLY14		**Direction: W-E** **Elevation: M**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
	1	- Total For OBFLY14 and W-E and M		
Station ID: OBFLY15		**Direction: E-W** **Elevation: L**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
FO TE Forster's tern	1	*Sterna forsteri*	shorebird	SSC
GR HE green heron	1	*Butorides virescens*	shorebird	NL
GR HE green heron	1	*Butorides virescens*	shorebird	NL
SN EG snowy egret	1	*Egretta thula*	shorebird	NL
	5	- Total For OBFLY15 and E-W and L		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY15		**Direction: E-W** **Elevation: M**		
BL TE black tern	2	*Chlidonias niger*	shorebird	NL
LB CU long-billed curlew	1	*Numenius americanus*	shorebird	NL
	3	- Total For OBFLY15 and E-W and M		
Station ID: OBFLY15		**Direction: N-S** **Elevation: H**		
CA EG cattle egret	6	*Bubulcus ibis*	shorebird	NL
	6	- Total For OBFLY15 and N-S and H		
Station ID: OBFLY15		**Direction: N-S** **Elevation: L**		
BN ST black-necked stilt	2	*Himantopus mexicanus*	shorebird	NL
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
	3	- Total For OBFLY15 and N-S and L		
Station ID: OBFLY15		**Direction: N-S** **Elevation: M**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	4	*Bubulcus ibis*	shorebird	NL
	5	- Total For OBFLY15 and N-S and M		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY15	**Direction: NW-SE**	**Elevation: H**		
BN ST black-necked stilt	7	*Himantopus mexicanus*	shorebird	NL
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	3	*Bubulcus ibis*	shorebird	NL
	12	**- Total For OBFLY15 and NW-SE and H**		
Station ID: OBFLY15	**Direction: NW-SE**	**Elevation: L**		
BL TE black tern	1	*Chlidonias niger*	shorebird	NL
BN ST black-necked stilt	1	*Himantopus mexicanus*	shorebird	NL
CA EG cattle egret	3	*Bubulcus ibis*	shorebird	NL
	5	**- Total For OBFLY15 and NW-SE and L**		
Station ID: OBFLY15	**Direction: NW-SE**	**Elevation: M**		
CA EG cattle egret	2	*Bubulcus ibis*	shorebird	NL
	2	**- Total For OBFLY15 and NW-SE and M**		
Station ID: OBFLY15	**Direction: S-N**	**Elevation: H**		
CA EG cattle egret	4	*Bubulcus ibis*	shorebird	NL
	4	**- Total For OBFLY15 and S-N and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY15		**Direction: S-N**	**Elevation: M**	
KILL killdeer	1	*Charadrius vociferus*	shorebird	NL
SN EG snowy egret	1	*Egretta thula*	shorebird	NL
	2	**- Total For OBFLY15 and S-N and M**		
Station ID: OBFLY15		**Direction: SE-NW**	**Elevation: H**	
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
GR EG great egret	1	*Casmerodius albus*	shorebird	NL
	2	**- Total For OBFLY15 and SE-NW and H**		
Station ID: OBFLY15		**Direction: W-E**	**Elevation: L**	
BL TE black tern	6	*Chlidonias niger*	shorebird	NL
	6	**- Total For OBFLY15 and W-E and L**		
Station ID: OBFLY15		**Direction: W-E**	**Elevation: M**	
GR EG great egret	1	*Casmerodius albus*	shorebird	NL
	1	**- Total For OBFLY15 and W-E and M**		
Station ID: OBFLY16		**Direction: E-W**	**Elevation: H**	
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
GULLS gulls	2	*Larus spp.*	shorebird	NL

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
	3	- Total For OBFLY16 and E-W and H		
Station ID: OBFLY16		**Direction: N-S** **Elevation: L**		
CA EG cattle egret	11	*Bubulcus ibis*	shorebird	NL
KILL killdeer	1	*Charadrius vociferus*	shorebird	NL
	12	- Total For OBFLY16 and N-S and L		
Station ID: OBFLY16		**Direction: N-S** **Elevation: M**		
BL TE black tern	2	*Chlidonias niger*	shorebird	NL
	2	- Total For OBFLY16 and N-S and M		
Station ID: OBFLY16		**Direction: N/A** **Elevation: N/A**		
NONE none	0	*none*	none	NONE
	0	- Total For OBFLY16 and N/A and N/A		
Station ID: OBFLY16		**Direction: NE-SW** **Elevation: L**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
LB CU long-billed curlew	1	*Numenius americanus*	shorebird	NL
	2	- Total For OBFLY16 and NE-SW and L		
Station ID: OBFLY16		**Direction: NW-SE** **Elevation: H**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
	1	- Total For OBFLY16 and NW-SE and H		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY16		**Direction: NW-SE**	**Elevation: M**	
CA EG cattle egret	2	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	3	*Bubulcus ibis*	shorebird	NL
	5	**- Total For OBFLY16 and NW-SE and M**		
Station ID: OBFLY16		**Direction: S-N**	**Elevation: H**	
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY16 and S-N and H**		
Station ID: OBFLY16		**Direction: S-N**	**Elevation: M**	
CA EG cattle egret	2	*Bubulcus ibis*	shorebird	NL
	2	**- Total For OBFLY16 and S-N and M**		
Station ID: OBFLY16		**Direction: SW-NE**	**Elevation: M**	
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY16 and SW-NE and M**		
Station ID: OBFLY16		**Direction: W-E**	**Elevation: L**	
GR HE green heron	1	*Butorides virescens*	shorebird	NL
GR HE green heron	2	*Butorides virescens*	shorebird	NL
GR HE green heron	3	*Butorides virescens*	shorebird	NL

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY16		**Direction: W-E** **Elevation: L**		
SN EG snowy egret	1	*Egretta thula*	shorebird	NL
	7	**- Total For OBFLY16 and W-E and L**		
Station ID: OBFLY16		**Direction: W-E** **Elevation: M**		
BL TE black tern	3	*Chlidonias niger*	shorebird	NL
	3	**- Total For OBFLY16 and W-E and M**		
Station ID: OBFLY17		**Direction: E-W** **Elevation: H**		
DC CO double-crested cormorant	1	*Phalacrocorax auritus*	water	SSC
	1	**- Total For OBFLY17 and E-W and H**		
Station ID: OBFLY17		**Direction: E-W** **Elevation: M**		
GULLS gulls	1	*Larus spp.*	shorebird	NL
KILL killdeer	1	*Charadrius vociferus*	shorebird	NL
	2	**- Total For OBFLY17 and E-W and M**		
Station ID: OBFLY17		**Direction: N-S** **Elevation: H**		
BN ST black-necked stilt	12	*Himantopus mexicanus*	shorebird	NL
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
CA TE Caspian tern	1	*Sterna caspia*	shorebird	SSC

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY17		**Direction: N-S** **Elevation: H**		
CORM cormorant	2	*Phalacrocorax spp.*	water	NL
DC CO double-crested cormorant	20	*Phalacrocorax auritus*	water	SSC
DUCKS ducks	2	*Anas spp., Aythya spp.*	water	NL
GR EG great egret	1	*Casmerodius albus*	shorebird	NL
GR EG great egret	1	*Casmerodius albus*	shorebird	NL
GULLS gulls	2	*Larus spp.*	shorebird	NL
SN EG snowy egret	2	*Egretta thula*	shorebird	NL
SN EG snowy egret	6	*Egretta thula*	shorebird	NL
	50	**- Total For OBFLY17 and N-S and H**		
Station ID: OBFLY17		**Direction: N-S** **Elevation: L**		
GR HE green heron	1	*Butorides virescens*	shorebird	NL
GULLS gulls	31	*Larus spp.*	shorebird	NL
KILL killdeer	3	*Charadrius vociferus*	shorebird	NL
	35	**- Total For OBFLY17 and N-S and L**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY17		**Direction: N-S**	**Elevation: M**	
BC NH black crowned night-heron	1	*Nycticorax nycticorax*	shorebird	SENS
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	2	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	3	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	4	*Bubulcus ibis*	shorebird	NL
GULLS gulls	2	*Larus spp.*	shorebird	NL
SN EG snowy egret	1	*Egretta thula*	shorebird	NL
SN EG snowy egret	1	*Egretta thula*	shorebird	NL
SN EG snowy egret	3	*Egretta thula*	shorebird	NL
	18	**- Total For OBFLY17 and N-S and M**		
Station ID: OBFLY17		**Direction: NE-SW**	**Elevation: H**	
CA EG cattle egret	3	*Bubulcus ibis*	shorebird	NL
GR EG great egret	1	*Casmerodius albus*	shorebird	NL
SN EG snowy egret	1	*Egretta thula*	shorebird	NL
SN EG snowy egret	5	*Egretta thula*	shorebird	NL

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
	10	**- Total For OBFLY17 and NE-SW and H**		
Station ID: OBFLY17		**Direction: NE-SW** **Elevation: L**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
	1	**- Total For OBFLY17 and NE-SW and L**		
Station ID: OBFLY17		**Direction: NE-SW** **Elevation: M**		
GULLS gulls	1	*Larus spp.*	shorebird	NL
	1	**- Total For OBFLY17 and NE-SW and M**		
Station ID: OBFLY17		**Direction: NW-SE** **Elevation: H**		
CA EG cattle egret	3	*Bubulcus ibis*	shorebird	NL
	3	**- Total For OBFLY17 and NW-SE and H**		
Station ID: OBFLY17		**Direction: NW-SE** **Elevation: L**		
CA EG cattle egret	2	*Bubulcus ibis*	shorebird	NL
	2	**- Total For OBFLY17 and NW-SE and L**		
Station ID: OBFLY17		**Direction: NW-SE** **Elevation: M**		
SN EG snowy egret	1	*Egretta thula*	shorebird	NL
	1	**- Total For OBFLY17 and NW-SE and M**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY17	**Direction: S-N**	**Elevation: H**		
BC NH black crowned night-heron	1	*Nycticorax nycticorax*	shorebird	SENS
BL SK black skimmer	1	*Rynchops niger*	shorebird	NL
BN ST black-necked stilt	2	*Himantopus mexicanus*	shorebird	NL
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	2	*Bubulcus ibis*	shorebird	NL
CORM cormorant	1	*Phalacrocorax spp.*	water	NL
GULLS gulls	1	*Larus spp.*	shorebird	NL
SN EG snowy egret	1	*Egretta thula*	shorebird	NL
	10	**- Total For OBFLY17 and S-N and H**		
Station ID: OBFLY17	**Direction: S-N**	**Elevation: L**		
CA EG cattle egret	5	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	5	*Bubulcus ibis*	shorebird	NL
GR HE green heron	1	*Butorides virescens*	shorebird	NL
GR HE green heron	2	*Butorides virescens*	shorebird	NL
GR HE green heron	2	*Butorides virescens*	shorebird	NL

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY17		**Direction: S-N** **Elevation: L**		
LB CU long-billed curlew	1	*Numenius americanus*	shorebird	NL
SN EG snowy egret	8	*Egretta thula*	shorebird	NL
	24	**- Total For OBFLY17 and S-N and L**		
Station ID: OBFLY17		**Direction: S-N** **Elevation: M**		
BC NH black crowned night-heron	1	*Nycticorax nycticorax*	shorebird	SENS
CA EG cattle egret	3	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	6	*Bubulcus ibis*	shorebird	NL
DUCKS ducks	1	*Anas spp., Aythya spp.*	water	NL
GULLS gulls	18	*Larus spp.*	shorebird	NL
KILL killdeer	1	*Charadrius vociferus*	shorebird	NL
	30	**- Total For OBFLY17 and S-N and M**		
Station ID: OBFLY17		**Direction: SE-NW** **Elevation: H**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
GULLS gulls	60	*Larus spp.*	shorebird	NL
	61	**- Total For OBFLY17 and SE-NW and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY17		**Direction: SE-NW** **Elevation: L**		
GULLS gulls	2	*Larus spp.*	shorebird	NL
	2	**- Total For OBFLY17 and SE-NW and L**		
Station ID: OBFLY17		**Direction: SE-NW** **Elevation: M**		
CA EG cattle egret	1	*Bubulcus ibis*	shorebird	NL
GULLS gulls	20	*Larus spp.*	shorebird	NL
	21	**- Total For OBFLY17 and SE-NW and M**		
Station ID: OBFLY17		**Direction: SW-NE** **Elevation: H**		
CA EG cattle egret	2	*Bubulcus ibis*	shorebird	NL
CA EG cattle egret	3	*Bubulcus ibis*	shorebird	NL
GR EG great egret	2	*Casmerodius albus*	shorebird	NL
	7	**- Total For OBFLY17 and SW-NE and H**		
Station ID: OBFLY17		**Direction: W-E** **Elevation: H**		
BL TE black tern	4	*Chlidonias niger*	shorebird	NL
	4	**- Total For OBFLY17 and W-E and H**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY18		**Direction: E-W** **Elevation: L**		
WHIMB whimbrel	2	*Numenius phaeopus*	shorebird	NL
	2	**- Total For OBFLY18 and E-W and L**		
Station ID: OBFLY18		**Direction: E-W** **Elevation: M**		
LB CU long-billed curlew	2	*Numenius americanus*	shorebird	NL
WHIMB whimbrel	2	*Numenius phaeopus*	shorebird	NL
	4	**- Total For OBFLY18 and E-W and M**		
Station ID: OBFLY18		**Direction: N-S** **Elevation: L**		
WHIMB whimbrel	3	*Numenius phaeopus*	shorebird	NL
	3	**- Total For OBFLY18 and N-S and L**		
Station ID: OBFLY18		**Direction: N/A** **Elevation: N/A**		
NONE none	0	*none*	none	NONE
NONE none	0	*none*	none	NONE
NONE none	0	*none*	none	NONE
NONE none	0	*none*	none	NONE
	0	**- Total For OBFLY18 and N/A and N/A**		

Notes: "NR" = not recorded

Flyover Survey
Total Number of Birds Observed In Each Station
Based on Direction and Elevation

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status
Station ID: OBFLY18		**Direction: NW-SE** **Elevation: H**		
WHIMB whimbrel	1	*Numenius phaeopus*	shorebird	NL
	1	**- Total For OBFLY18 and NW-SE and H**		
Station ID: OBFLY18		**Direction: S-N** **Elevation: L**		
KILL killdeer	3	*Charadrius vociferus*	shorebird	NL
	3	**- Total For OBFLY18 and S-N and L**		
Station ID: OBFLY18		**Direction: W-E** **Elevation: H**		
EL TE elegant tern	1	*Sterna elegans*	shorebird	NL
	1	**- Total For OBFLY18 and W-E and H**		

Notes: "NR" = not recorded

Abundance Survey
Total Number of Birds Observed In Each Station

Species Code Common Name	No. Observed	Habitat Scientific Name	Bird Type Comments	Status	Date
Station ID: A3A					
CA EG cattle egret	2	STUBBLE-PLOW *Bubulcus ibis*	shorebird	NL	09/22/94
	2	**- Total For A3A**			
Station ID: A3B					
CA EG cattle egret	50	ALFALFA *Bubulcus ibis*	shorebird	NL	10/04/94
CA EG cattle egret	75	AG *Bubulcus ibis*	shorebird	NL	10/04/94
GR EG great egret	0	ALFALFA *Casmerodius albus*	shorebird	NL	10/04/94
KILL killdeer	1	ALFALFA *Charadrius vociferus*	shorebird	NL	10/04/94
KILL killdeer	1	ALFALFA? *Charadrius vociferus*	shorebird	NL	09/22/94
LB CU long-billed curlew	100	ALFALFA *Numenius americanus*	shorebird	NL	10/04/94
SN EG snowy egret	1	ALFALFA? *Egretta thula*	shorebird	NL	09/22/94
WF IB white-faced ibis	1	ALFALFA *Plegadis chihi*	shorebird	SSC	10/04/94
WILL willet	3	ALFALFA *Catoptrophorus semipalmatus*	shorebird	NL	10/04/94
	232	**- Total For A3B**			
Station ID: D24					
AM KE American kestrel	1	AG, CANAL *Falco sparverius*	raptor	NL	12/16/99
BL PH black phoebe	2	AG *Sayornis nigricans*	passerine	NL	05/11/00

Abundance Survey
Total Number of Birds Observed In Each Station

Species Code Common Name	No. Observed	Habitat Scientific Name	Bird Type Comments	Status	Date
Station ID: D24					
BU OW burrowing owl	?	PLOWED *Speotyto cunicularia*	raptor	SSC	06/08/00
BU OW burrowing owl	1	ALFALFA AGR *Speotyto cunicularia*	raptor	SSC	12/17/99
BU OW burrowing owl	2	AG *Speotyto cunicularia*	raptor	SSC	01/07/00
BU OW burrowing owl	2	AG *Speotyto cunicularia*	raptor	SSC	06/23/00
BU OW burrowing owl	2	AG, CANAL *Speotyto cunicularia*	raptor	SSC	12/16/99
BU OW burrowing owl	2	PLOWED *Speotyto cunicularia*	raptor	SSC	06/08/00
CA EG cattle egret	2	AG *Bubulcus ibis*	shorebird	NL	06/23/00
GT GR great tailed grackle	2	PLOWED *Quiscalus mexicanus*	passerine	NL	06/08/00
KILL killdeer	1	ALFALFA AGR *Charadrius vociferus*	shorebird	NL	12/17/99
KILL killdeer	2	AG *Charadrius vociferus*	shorebird	NL	05/26/00
LE SA least sandpiper	3	CANAL *Calidris minutilla*	shorebird	NL	12/17/99
NONE none	0	AG *none*	none	NONE	04/14/00
RW BL red-winged blackbird	15	AG *Agelaius phoeniceus*	passerine	NL	06/23/00
RW BL red-winged blackbird	50	AG *Agelaius phoeniceus*	passerine	NL	05/11/00
RW BL red-winged blackbird	75	AG *Agelaius phoeniceus*	passerine	NL	05/26/00

Abundance Survey
Total Number of Birds Observed In Each Station

Species Code Common Name	No. Observed	Habitat Scientific Name	Bird Type Comments	Status	Date
Station ID: D24					
WE SA western sandpiper	5	AG, CANAL *Calidris mauri*	shorebird	NL	12/16/99
	167	**- Total For D24**			
Station ID: D25					
BU OW burrowing owl	1	AG *Speotyto cunicularia*	raptor	SSC	04/28/00
BU OW burrowing owl	2	AG *Speotyto cunicularia*	raptor	SSC	06/23/00
BU OW burrowing owl	2	PLOWED *Speotyto cunicularia*	raptor	SSC	05/26/00
CA EG cattle egret	1	PLOWED *Bubulcus ibis*	shorebird	NL	05/26/00
CA EG cattle egret	2	PLOWED *Bubulcus ibis*	shorebird	NL	05/11/00
KILL killdeer	1	PLOWED *Charadrius vociferus*	shorebird	NL	05/11/00
NONE none	0	AG *none*	none	NONE	01/31/00
RW BL red-winged blackbird	1	AG *Agelaius phoeniceus*	passerine	NL	04/28/00
RW BL red-winged blackbird	5	AG *Agelaius phoeniceus*	passerine	NL	06/23/00
RW BL red-winged blackbird	40	AGR *Agelaius phoeniceus*	passerine	NL	03/31/00
RW BL red-winged blackbird	50	AGR *Agelaius phoeniceus*	passerine	NL	03/31/00
	105	**- Total For D25**			

Abundance Survey
Total Number of Birds Observed In Each Station

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status	Date
Station ID: MIDWAY					
AM KE American kestrel	3	Developed *Falco sparverius*	raptor	NL	02/06/02
GR RO greater roadrunner	1	Developed *Geococcyx californianus*	ground dweller	NL	02/06/02
	4 - Total For MIDWAY SUBSTATION				
Station ID: OB1					
GB HE great blue heron	1	AGRI *Ardea herodias*	shorebird	SENS	05/14/02
GB HE great blue heron	1	AGRI-MARSH *Ardea herodias*	shorebird	SENS	05/23/02
GULLS gulls	6	AGRI *Larus spp.*	shorebird	NL	05/14/02
NONE none	0	 *none*	none	NONE	05/31/02
NONE none	0	 *none*	none	NONE	06/05/02
NONE none	0	 *none*	none	NONE	06/14/02
NONE none	0	AG & WETLAND *none*	none	NONE	04/26/02
SN EG snowy egret	1	AGRI *Egretta thula*	shorebird	NL	05/14/02
	9 - Total For OB1				
Station ID: OB2					
KILL killdeer	3	OW & AG *Charadrius vociferus*	shorebird	NL	04/26/02
NONE none	0	 *none*	none	NONE	05/23/02

Abundance Survey
Total Number of Birds Observed In Each Station

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status	Date
Station ID: OB2					
NONE none	0	 *none*	none	NONE	05/31/02
NONE none	0	 *none*	none	NONE	06/05/02
NONE none	0	 *none*	none	NONE	06/14/02
NONE none	0	AGRI *none*	none	NONE	05/14/02
	3	- **Total For OB2**			
Station ID: OB3					
NONE none	0	 *none*	none	NONE	04/26/02
NONE none	0	 *none*	none	NONE	05/23/02
NONE none	0	 *none*	none	NONE	05/31/02
NONE none	0	 *none*	none	NONE	06/05/02
NONE none	0	 *none*	none	NONE	06/14/02
NONE none	0	AGRI *none*	none	NONE	05/14/02
	0	- **Total For OB3**			
Station ID: OB4					
KILL killdeer	2	 *Charadrius vociferus*	shorebird	NL	04/26/02
KILL killdeer	2	 *Charadrius vociferus*	shorebird	NL	05/31/02

Abundance Survey
Total Number of Birds Observed In Each Station

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status	Date
Station ID: OB4					
KILL killdeer	6	 *Charadrius vociferus*	shorebird	NL	05/23/02
NONE none	0	 *none*	none	NONE	06/05/02
NONE none	0	 *none*	none	NONE	06/14/02
NONE none	0	AGRI *none*	none	NONE	05/14/02
	10	**- Total For OB4**			
Station ID: OB5					
KILL killdeer	1	 *Charadrius vociferus*	shorebird	NL	04/26/02
NONE none	0	 *none*	none	NONE	05/23/02
NONE none	0	 *none*	none	NONE	05/31/02
NONE none	0	 *none*	none	NONE	06/05/02
NONE none	0	 *none*	none	NONE	06/14/02
NONE none	0	AGRI *none*	none	NONE	05/14/02
	1	**- Total For OB5**			
Station ID: OBI1					
BN ST black-necked stilt	2	AG *Himantopus mexicanus*	shorebird	NL	05/17/01
CA EG cattle egret	1	AG *Bubulcus ibis*	shorebird	NL	05/17/01

Abundance Survey
Total Number of Birds Observed In Each Station

Species Code Common Name	No. Observed	Habitat Scientific Name	Bird Type Comments	Status	Date
Station ID: OBI1					
GB HE great blue heron	1	AGRI *Ardea herodias*	shorebird	SENS	05/14/02
KILL killdeer	1	AG *Charadrius vociferus*	shorebird	NL	05/04/01
KILL killdeer	1	AG *Charadrius vociferus*	shorebird	NL	05/17/01
NONE none		AG *none*	none	NONE	10/17/01
NONE none		AG *none*	none	NONE	11/15/01
NONE none		AG *none*	none	NONE	11/20/01
NONE none		AG *none*	none	NONE	11/27/01
NONE none		AG *none*	none	NONE	01/10/02
NONE none	0	 *none*	none	NONE	04/26/02
NONE none	0	 *none*	none	NONE	05/23/02
NONE none	0	 *none*	none	NONE	05/31/02
NONE none	0	 *none*	none	NONE	06/05/02
NONE none	0	 *none*	none	NONE	06/14/02
NONE none	0	AG *none*	none	NONE	04/13/01
NONE none	0	AG *none*	none	NONE	06/08/01

Abundance Survey
Total Number of Birds Observed In Each Station

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status	Date
Station ID: OBI1					
NONE none	0	AG *none*	none	NONE	06/28/01
RW BL red-winged blackbird	4	AG *Agelaius phoeniceus*	passerine	NL	05/17/01
RW BL red-winged blackbird	100	AG *Agelaius phoeniceus*	passerine	NL	05/03/01
	110	**- Total For OBI1**			
Station ID: OBI2					
BU OW burrowing owl	1	 *Speotyto cunicularia*	raptor	SSC	05/23/02
NONE none		AG *none*	none	NONE	10/17/01
NONE none		AG *none*	none	NONE	11/15/01
NONE none		AG *none*	none	NONE	11/20/01
NONE none		AG *none*	none	NONE	11/27/01
NONE none		AG *none*	none	NONE	12/13/01
NONE none	0	 *none*	none	NONE	04/26/02
NONE none	0	 *none*	none	NONE	05/31/02
NONE none	0	 *none*	none	NONE	06/05/02
NONE none	0	 *none*	none	NONE	06/14/02
NONE none	0	AG *none*	none	NONE	04/13/01

Abundance Survey
Total Number of Birds Observed In Each Station

Species Code Common Name	No. Observed	Habitat Scientific Name	Bird Type Comments	Status	Date
Station ID: OBI2					
NONE none	0	AG *none*	none	NONE	05/04/01
NONE none	0	AG *none*	none	NONE	06/08/01
NONE none	0	AG *none*	none	NONE	06/28/01
NONE none	0	AGRI *none*	none	NONE	05/14/02
RW BL red-winged blackbird	4	AG *Agelaius phoeniceus*	passerine	NL	05/17/01
	5	- **Total For OBI2**			
Station ID: OBI3					
BN ST black-necked stilt	1	AG *Himantopus mexicanus*	shorebird	NL	05/17/01
BU OW burrowing owl	1	AG *Speotyto cunicularia*	raptor	SSC	02/06/02
CA EG cattle egret	2	AG *Bubulcus ibis*	shorebird	NL	04/13/01
CA EG cattle egret	3	 *Bubulcus ibis*	shorebird	NL	04/26/02
CA EG cattle egret	40	 *Bubulcus ibis*	shorebird	NL	06/05/02
GT GR great tailed grackle	5	AG *Quiscalus mexicanus*	passerine	NL	04/13/01
MALL mallard	2	 *Anas platyrhynchos*	water	NL	04/26/02
NONE none		AG *none*	none	NONE	10/17/01
NONE none		AG *none*	none	NONE	11/15/01

Abundance Survey
Total Number of Birds Observed In Each Station

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status	Date
Station ID: OBI3					
NONE none		AG *none*	none	NONE	11/20/01
NONE none		AG *none*	none	NONE	11/27/01
NONE none		AG *none*	none	NONE	12/13/01
NONE none	0	 *none*	none	NONE	05/23/02
NONE none	0	 *none*	none	NONE	05/31/02
NONE none	0	 *none*	none	NONE	06/14/02
NONE none	0	AG *none*	none	NONE	05/03/01
NONE none	0	AG *none*	none	NONE	06/08/01
NONE none	0	AG/DIST *none*	none	NONE	06/28/01
NONE none	0	AGRI *none*	none	NONE	05/14/02
RW BL red-winged blackbird	100	AG *Agelaius phoeniceus*	passerine	NL	05/04/01
YH BL yellow-headed blackbird	11	AG *Xanthocephalus xanthocephalus*	passerine	NL	04/13/01
	165	**- Total For OBI3**			
Station ID: PLANT					
BN ST black-necked stilt	1	AGRI *Himantopus mexicanus*	shorebird	NL	05/14/02
KILL killdeer	2	AGRI *Charadrius vociferus*	shorebird	NL	05/14/02

Abundance Survey
Total Number of Birds Observed In Each Station

Species Code / Common Name	No. Observed	Habitat / Scientific Name	Bird Type / Comments	Status	Date
Station ID: PLANT					
NONE	0		none	NONE	04/26/02
none		*none*			
	3	- Total For PLANT SITE			
Station ID: POWER					
GB HE	1	AG	shorebird	SENS	02/06/02
great blue heron		*Ardea herodias*			
	1	- Total For POWER PLANT			
Station ID: T3A1					
NONE	0	stubble	none	NONE	09/22/94
none		*none*			
	0	- Total For T3A1			
Station ID: T3A2					
NONE	0	ref hq	none	NONE	09/22/94
none		*none*			
	0	- Total For T3A2			
Station ID: T3A3					
GR EG	1	ALF	shorebird	NL	10/04/94
great egret		*Casmerodius albus*			
GR EG	1	ALFALFA	shorebird	NL	10/17/94
great egret		*Casmerodius albus*			
NONE	0	alfalfa	none	NONE	09/22/94
none		*none*			
	2	- Total For T3A3			